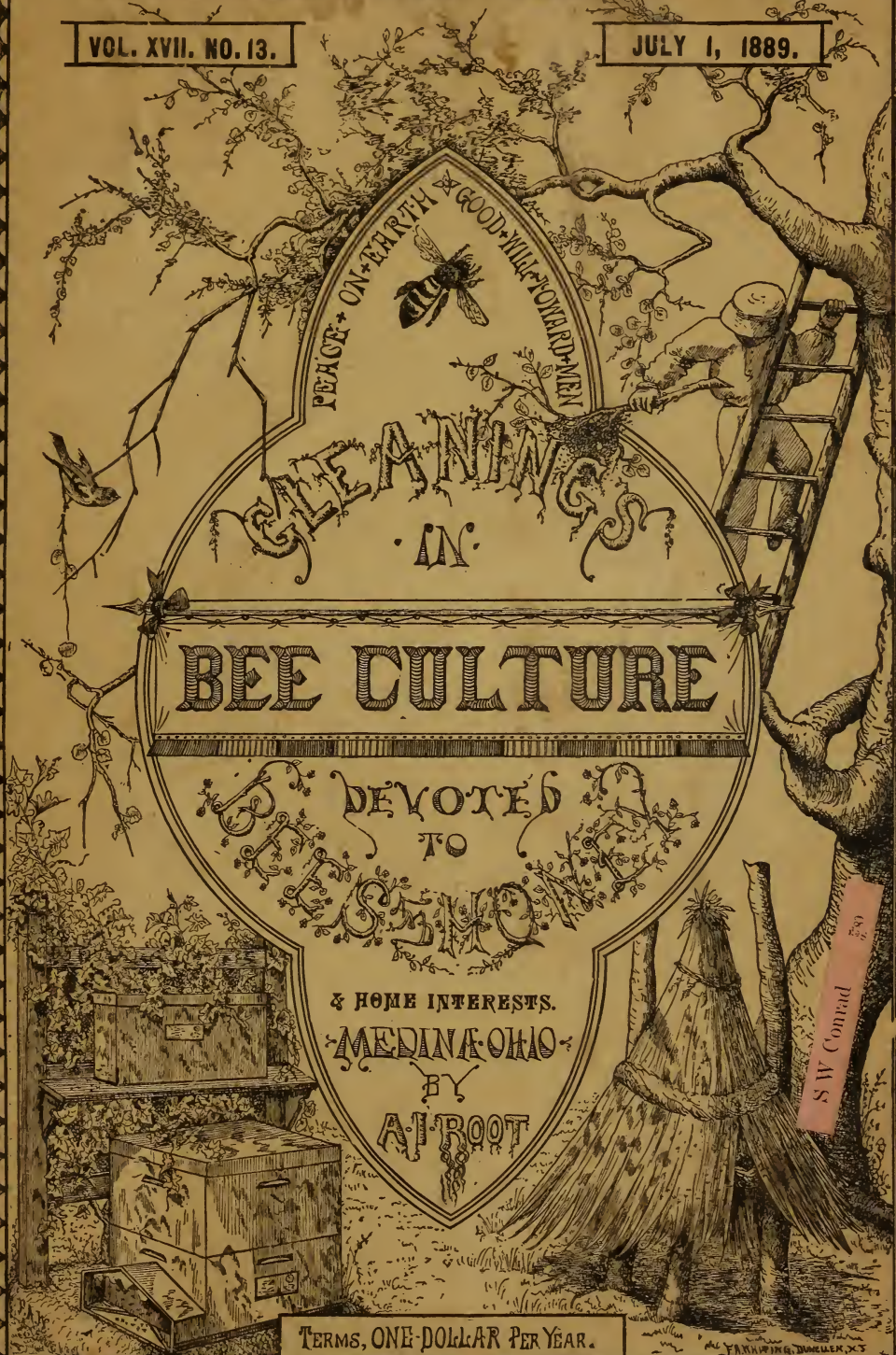


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VOL. XVII. NO. 13.

JULY 1, 1889.



TERMS, ONE DOLLAR PER YEAR.

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

GLEANINGS IN BEE CULTURE.

ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them. Patent-medicine advertisements, and others of a like nature, can not be inserted at any price.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions or more, 20 per cent; 24 insertions or more, 25 per cent.

On 48 lines (½ column) and upward, 1 insertion, 5 per cent; 3 insertions, 10 per cent; 6 insertions, 15 per cent; 9 insertions, 20 per cent; 12 insertions, or more, 25 per cent; 24 insertions or more, 33½ per cent.

On 96 lines (whole column) and upward, 1 insertion, 10 per cent; 3 insertions, 15 per cent; 6 insertions, 20 per cent; 9 insertions, 25 per cent; 12 insertions, or more, 33½ per cent; 24 insertions or more, 40 per cent.

On 192 lines (whole page), 1 insertion, 15 per cent; 3 insertions, 20 per cent; 6 insertions, 25 per cent; 9 insertions, 30 per cent; 12 insertions or more, 40 per cent; 24 insertions or more, 50 per cent.

No additional discount for electrotype advertisements.

A. I. Root.

CLUBBING LIST.

We will send GLEANINGS—			
With the American Bee-Journal, W'y	(\$1.00)	\$1.75	
With the Canadian Bee Journal, W'y	(1.00)	1.75	
With the Bee Hive,	(.30)	1.20	
With the Bee-Keepers' Review,	(.50)	1.40	
With the British Bee-Journal,	(2.62)	3.25	
With all of the above journals,		6.40	
With American Apiculturist,	(\$1.00)	1.70	
With Bee-Keepers' Advance and Poultryman's Journal,	(.50)	1.45	
With American Agriculturist,	(\$1.50)	2.25	
With American Garden,	(2.00)	2.60	
With Prairie Farmer,	(1.50)	2.35	
With Rural New-Yorker,	(2.00)	2.90	
With Farm Journal,	(.50)	1.25	
With Scientific American,	(3.00)	3.75	
With Ohio Farmer,	(1.00)	1.90	
With Popular Gardening,	(1.00)	1.85	
With U. S. Official Postal Guide,	(1.50)	2.25	
With Sunday-School Times, weekly,	(2.00)	2.25	
With Drainage and Farm Journal,	(1.00)	1.75	
[Above Rates include all Postage in U. S. and Canada.]			

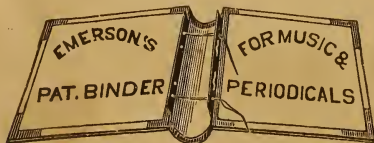
FLAT - BOTTOM COMB FOUNDATION.



High side-walls, 4 to 14 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS.

5tfid Sole Manufacturers,
SPROUT BROOK, MONT. CO., N. Y.



You can not look over the back No's of GLEANINGS, or any other periodical with satisfaction, unless they are in some kind of a binder. Who has not said—"Dear me, what a bother—I must have last month's journal and it is nowhere to be found?" Put each No. in the Emerson binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen, even though it were months ago.

Binders for GLEANINGS (will hold them for one year) gilt lettered, for 60 cts.; by mail, 12 cts. extra. Ten, \$5.00; 100, \$45.00. Table of prices of binders for any periodical, mailed on application. Send in your orders.

A. I. Root, Medina, Ohio.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

Untested Queens

FOR \$1.00 FROM JULY 1ST TILL NOV. 1ST.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delays as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Col. Co., Pa.	7tfid89
*Paul L. Viallon, Bayou Goula, La.	7tfid89
*S. F. Newman, Norwalk, Huron Co., O.	7tfid89
*Jos. Byrne, Ward's Creek, East Baton Rouge	
	7-tfd Par., La.
C. C. Vaughn, Columbia, Tenn.	21tfid88
Wm. L. Ashe, Edwardsville, Mad. Co., Ill.	11tfid88
J. M. Jenkins, Wetumpka, Ala.	9tfid89
*Oliver Hoover & Co., Snyderstown, Northum-	
	5-15d berland Co., Pa.
Abbott L. Swinson, Goldsboro, Wayne Co., N. C.	
	5tfid
C. R. Mitchell, Ocala, Marion Co., Fla.	9tfid89
E. Burke, Vincennes, Knox Co., Ind.	9-8-1890
R. F. Holtermann, Brantford, Ont., Can.	11tfid89
*Hiram Burdg, Xenia, Greene Co., O.	13d
D. A. McCord, Oxford, Butler Co., Ohio.	11-21 '89
*J. Mattoon, Atwater, Portage Co., Ohio.	13tfid89
S. R. Roddy, Mechanicstown, Fred. Co., Md.	11-13d

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
P. L. Viallon, Bayou Goula, Iberville Par., La	7tfid89
C. W. Costellow, Waterboro, York Co., Me.	7tfid89
R. B. Leahy, Higginsville, Laf. Co., Mo.	21tfid88
J. M. Jenkins, Wetumpka, Ala.	9tfid89

Oldest Bee Paper in America—Established in 1861.

AMERICAN BEE JOURNAL,

16-page Weekly—\$1.00 a year.

Sample Free. **THOMAS G. NEWMAN & SON,**
925 West Madison Street, Chicago, Ill.

BEE-KEEPER'S GUIDE.

Every farmer and bee-keeper should have it. 15th thousand just out; much enlarged, beautifully illustrated, and fully up to date. It is both practical and scientific. Price \$1.50. To dealers, \$1.00 by mail to any address. In 100 lots, 50% off by freight.

Address **A. J. COOK,**
Agricultural College, Mich.

[In responding to this advertisement mention GLEANINGS.]

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CONVENTION NOTICE.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary.

Brantford, Ont., Can.

R. F. HOLTERMANN, Sec'y.

SECTION PRESS.

PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to

WAKEMAN & CROCKER, Lockport, N. Y.

In responding to this advertisement mention GLEANINGS.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION.
See advertisement in another column.

100 TONS OF COMB HONEY

Will undoubtedly be put on the market this season in our

FOLDING PAPER BOXES.

Send for catalogue, 20 pages, free. Sample box, 5c. Our prices defy competition.

9 20db

A. O. CRAWFORD, S. WEYMOUTH, MASS.

In responding to this advertisement mention GLEANINGS.

B. J. MILLER & CO.,

NAPPANEE, IND.,
BEE - HIVES AND ITALIAN QUEENS.

4¼x4¼ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list.

1tfdb In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO.,
3tfdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

QUEENS! QUEENS!

* ELLISON'S * ALL ITALIANS * JUNE AND AFTER.

1 untested queen.....	75
3 " " " " " " " " " " " "	\$2 00
1 tested " " " " " " " " " " " "	1 50
3 " " " " " " " " " " " "	4 25

2 and 3 frame nuclei. Safe arrival guaranteed. Wholesale rates on application.

W. J. ELLISON,
11-14db Stateburg, Sumter Co., S. C.

In responding to this advertisement mention GLEANINGS.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

In responding to this advertisement mention GLEANINGS.

I AM AWAITING YOUR ORDER FOR 3-FRAME NUCLEI.

Price, with untested queen, \$3.00. Best tested queen, \$4.00; 2 frame nuclei, 50 cts. less. Combs straight and true; all worker comb, and bees finest of Italians. One untested queen, \$1.00; 6 for \$5.00. Best tested, \$2.50 each.

JNO. A. THORNTON,
Exp. Office, Ursa, Ill. Lima, Ill.
Mention GLEANINGS. 12-17db

DO YOU WANT

One of the finest GOLDEN ITALIAN QUEENS you ever saw? Then send to us and get one reared by our new, natural, and practical method.

Warranted queens, each, \$1.00; Select warranted, each, \$1.25; Tested, \$1.50.

We have had thirty years' experience in rearing queens. 25,000 of our old customers will tell you that the purity, beauty, and quality of our queens can not be excelled.

12tfdb HENRY ALLEY, Wenham, Mass.

In responding to this advertisement mention GLEANINGS.

NOT TOO LATE

YET TO ORDER SUPPLIES

From me, as I ship very promptly. The class of goods I handle is very fine.

*-TRY * ME * ONCE *-

Catalogue free. JOHN ASPINWALL,
12-13db Barrytown, Dutchess Co., N. Y.
In responding to this advertisement mention GLEANINGS.

LOOK HERE! Cheap Enough At Last.

Full colonies of pure Italian bees in A. I. Root's Simplicity hive, only \$4.00 each. Now ready to ship. Frames, wired combs drawn from fdn., every thing first-class. Write for prices of Poland-China swine, White and Brown Leghorn chickens, and Mallard ducks. Eggs for hatching. Also white and black ferrets. Address N. A. KNAPP,
11tfdb ROCHESTER, LORAIN CO., OHIO.

In responding to this advertisement mention GLEANINGS.

FOR SALE.

Sections in bushel boxes, No. 1, \$3.00 per M. Japanese buckwheat; a complete S. or L. hive for comb honey, 75c; shipping-crates, and all kinds of supplies cheap. Price list free.

9tfdb W. D. SOPER, Jackson, Mich.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio; Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

KEYSTONE APIARY. Imported and Alley Queen-Mothers

Tested, June..... \$3.00; July to October..... \$2.50
Fertile, " 1.50; " 1.00
Virgin, " to October 50c
Alley drone and queen traps at regular prices.
Send for circular.

W. J. ROW,

Meriton Gleanings. 10-15db Greensburg, Pa.

Price of Sections Reduced.

I will sell No. 1 white basswood V-groove sections at \$3.00 per M. No. 2, \$2.00 per M. Price list free.

J. M. KINZIE,

10-14db Rochester, Oakland Co., Mich.

In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, \$1.25 each; untested, June to Oct., 75 cts; 3 for \$2.00. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tfdb JNO. NEBEL & SON, High Hill, Mo.

Gift! Gift! Gift!

To every purchaser of one tested yellow Italian queen, in June and after, for \$1.50, I will give one L. frame nucleus, 50 cts., for each added frame of brood and bees. Tested queens, \$1.25; untested, \$1.00. Send for price list.

MRS. OLIVER COLE,

Sherburne, Chen. Co., N. Y.

Chenango Valley Apiary. 10tfdb

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.

See advertisement in another column.

FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars. DR. A. B. MASON,

9-14db Anburndale, Ohio.

In responding to this advertisement mention GLEANINGS.

1889. 19th Year in Queen-Rearing. 1889.

ITALIAN QUEEN-BEES.

Tested queen, in April, May, and June..... \$1 50
Untested " 80

Sent by mail and safe arrival guaranteed. Also nuclei and full colonies. Eggs of Pekin ducks—White and Brown Leghorns, and White-crested Black Polish chicks, \$1.50 per dozen. Address

W. P. HENDERSON,

5tfdb

Murfreesboro, Tenn.

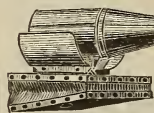
In responding to this advertisement mention GLEANINGS.



Bingham & Hetherington's Honey-knife. Patented 1879.

Bingham Smokers and Bingham & Hetherington Honey-knives are staple tools, and have been used ten years without complaint. The smokers last, work easily, throw a stream of smoke ten feet, and save time, stings, and money. Send card for descriptive circular of the cheapest and best tools in use—free.

THEY LAST.



Patented 1879.

ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

ELM GROVE, MASS.—Have one I have used six seasons, good yet.

F. M. TAINTOR.

AUSTIN, TEXAS, Apr. 24, 1889.—Goods came through in good order. We are glad we can show our customers a full line of solid comfort.

Fraternally, J. W. TAYLOR.

FARINA, ILL., Mar. 23, 1889.—Those who see me use your smoker can not be persuaded to buy any other. They stand the test and do the work every time. Respectfully, M. D. HEWETT.

PRICES:

Doctor smoker (wide shield)	..... 3 1/4 inch	..... \$2 00
Conqueror smoker (wide shield)	3	..... 1 75
Large smoker (wide shield)	..... 2 1/4	..... 1 50
Extra smoker (wide shield)	..... 2	..... 1 25
Plain smoker	..... 2	..... 1 00
Little Wonder smoker	..... 1 1/4	..... 65
Bingham & Hetherington Honey-knife	..... 1	..... 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address T. F. BINGHAM, or 11-16db BINGHAM & HETHERINGTON, Mention GLEANINGS. ABRONIA, MICH.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4 1/4 x 4 1/4 sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

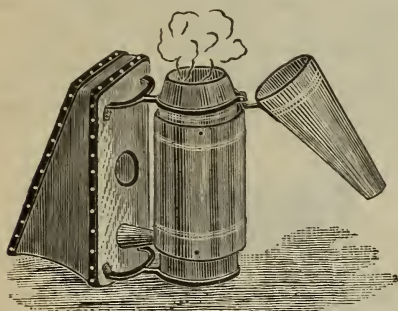
A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2 1/2 x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. CLARK'S illustrated price list. He is rock bottom for all supplies, and don't you forget it.



W. E. Clark's Improved Hinge-Nozzle Quinby Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York.
3-14db Mention Gleanings.

ITALIAN BEES AND QUEENS. Tested queens, \$1.50. Untested, 80c. Bees, per lb., \$1.00. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list. MISS A. M. TAYLOR.
9-10fdb Box 77. Mulberry Grove, Bond Co., Ill.
 In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,
3-14db Box 11. Higginsville, Mo.
 In responding to this advertisement mention GLEANINGS.

THE HIVE AND HONEY BEE, and DADANT'S FOUNDATION.
See advertisement in another column.

HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

In responding to this advertisement mention GLEANINGS.

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

OLIVER HOOVER & CO.,
4tfdb Snydertown, Pa.
 In responding to this advertisement mention GLEANINGS.

LOOK HERE!

STRONG THREE-FRAME NUCLEI,
WITH QUEEN FROM IMPORTED
ITALIAN MOTHER, FOR \$2.50.

Safe arrival and satisfaction guaranteed.

Address G. W. GILLET, WELLINGTON, OHIO,
10-11-12d or M. W. SHEPHERD, ROCHESTER, OHIO.
 In responding to this advertisement mention GLEANINGS.



Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for
free catalogue. Address
FRANK A. EATON,
5-16db Bluffton, Ohio.
 In responding to this advertisement mention GLEANINGS.

Italian Queens by Return Mail.

Tested, \$1.00; untested, 50c each, or more at same rate. 10tfdb I. GOOD, SPARTA, WHITE CO., TENN.

JAPANESE BUCKWHEAT!

By freight or express, not prepaid.

Per bu., \$2.00; per ½-bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail post-paid, 25 cts

Address

John C. Cilliland,
5-14db Bloomfield, Greene Co., Ind.
 In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—Any one that has a book suitable for a mission Sunday-school, and would like to donate the same, to send it by mail to 13tfdb GEO. E. HILTON, Fremont, Newaygo Co., Mich.

WANTED.—To exchange a complete apiary of 25 colonies choice Italians and all needed fixtures for a 56-in. bicycle or offers, a rare bargain. 13d H. C. CRAGG, Groesbeck, Hamilton Co., Ohio.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address 4tfdb OTTO KLEINOW, No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange old copies of GLEANINGS IN BEE CULTURE for bee-keepers' names and addresses, plainly written. I will send 3 copies (as long as they last) for each half-dozen names sent to me from anywhere in Nebraska or Dakota. I will not agree to send any certain number from 1879 to 1888. J. M. YOUNG, Box 874, Plattsmouth, Neb.

Black and Hybrid Queens For Sale.

Black and hybrid queens for sale, 30 and 50 cts. respectively. J. A. KIME, Fairfield, Pa.

FOR SALE.—Two black and 10 hybrid queens at 25 and 35 cts. A. W. SPRACKLEN, Cowden, Shelby Co., Ill.

I have a few hybrid queens which I will mail for 35 cents each. S. P. YODER, East Lewistown, O.

Now ready to mail, Italian-hybrid queens at 30c each. N. A. KNAPP, Rochester, Lorain Co., O. 13 14d

Black and hybrid queens for sale at 20 and 25 cts., respectively, by JAS. MCNEILL, Hudson, N. Y.

Hybrid queens for sale, of this season's raising, and prolific, 35c each, or 3 for \$1. Safe arrival guaranteed. J. P. POOLE, Russellville, Ark.

Having purchased a large apiary of choice black and hybrid bees, I will sell the queens at 20 cts. and 30 cts. respectively. OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa. 13tfdb

FOR SALE.—Three mismatched Italian queens, 35c each. Lot for \$1.00. CHAS. MCCLAVE, New London, Ohio.



Vol. XVII.

JULY 1, 1889.

No. 13.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

OUT-APIARIES, NO. X.

VENTILATION FOR BEES WHEN HAULING.

ONE day I was hauling, among others, a very strong colony of bees from home to the Wilson apiary. The day was very hot, and I did not get started till pretty late, and was delayed by some business in the village as I passed through. When the entrance to the hive was opened, after reaching the Wilson apiary, the bees of this strong colony rushed forth in a body, not taking wing—they couldn't take wing—but spreading out on the ground until they covered a distance of perhaps three feet from the hive. I should think about a fourth of the colony were on the ground—perhaps not so many. The rest of the bees didn't crawl out—dead bees don't. Those that did come out soon died. The whole colony was a steaming, wet mass, and the combs were soft and broken down. Fifty colonies lost in wintering were not mourned so much as that one colony. It seemed a case of deliberate murder.

Bees don't need such an immense amount of ventilation; but what they do need, be very sure you give them, or they will smother to death. I have, in a few cases, hauled bees in the middle of a hot day, in the middle of summer, in which case I gave them the usual ventilation at the entrance and a covering of wire cloth over the entire top, a space of three or four inches being between the tops of the frames and the wire cloth. That was probably more ventilation than they needed, but the excess of ventilation did no hurt. For the usual hauling, spring and fall, I give no other ventilation than the ordinary entrance covered with wire cloth. Until recently the entrances to my hives were $1\frac{1}{2}$ x $\frac{3}{4}$, making a space of nearly 6 square inches; but now they are $1\frac{1}{2}$ x $\frac{1}{2}$, making about 8 square inches.

The 6 square inches seemed to answer very well, but 8 are probably better. Perhaps smaller hives would need more ventilation. In any case, be sure that you give ventilation enough. Don't start out with a full load of bees, giving only 6 inches ventilation, till you have tried one or two, and know that 6 inches is enough for you. Possibly 12 square inches may be none too large space for ventilating your hives. At any rate, too much ventilation will do no harm, and the only reason I have so little is the simple matter of convenience. I formerly attached to the front of each entrance a wire-cloth portico, which answered the purpose excellently, but I now have a simpler and easier way. Take a stick about as long as the width of the hive, an inch wide, and $\frac{3}{8}$ thick. Take a piece of wire cloth about two inches wide, and as long as your stick, and double it lengthwise. Lay the wire cloth on the stick, and fasten it on with three or four double-pointed tacks, running them across the grain



WIRE-CLOTH STOPPER FOR ENTRANCE, SHOWING THE SIDE THAT GOES NEXT THE HIVE.

so as not to split the stick, letting the doubled edge project over the edge of the stick $\frac{3}{8}$ or $\frac{1}{2}$ inch, whatever the size of the entrance. A single thickness of wire cloth would answer as well or better than double, but for its raveling out at the edge. A $1\frac{1}{2}$ -inch wire nail driven into each end of the stick holds it fast on the hive. The nail is driven in only a little more than half its length, so it can be easily drawn out with a claw hammer. After the nail is drawn in a sufficient depth, it is bent over so there is no danger of the stick slipping back on the nail,

I need not say that such a stopper is not suitable for all hives. For hives with loose bottom-boards, there might be special bottom-boards made, to be used only in carrying, in which should be a liberal allowance of wire cloth.

C. C. MILLER.

Marengo, Ill.

Friend M., a good many of us have had experience with bees so nearly smothered that they crawled out of the hive and off through the dirt, in every direction. Now, if they are allowed to go off through the dirt it is a dead loss, for they are dead bees. But there is a way of saving them. I have given it with full particulars in our little book, "Mr. Merrybanks and his Neighbor." I have saved bees so nearly suffocated they were wet and daubed with honey, a great many times, in the same way. Our boys once put up some nuclei during very hot weather. The combs were heavy with honey, and the bees were gorged. Bees from the apiary soon began hanging around the wire cloth, and making a bother; and to keep them away, somebody set them inside of a chaff hive and laid a cover on, thinking that the ventilating holes in the cover would give them air enough. Not so. When I found them they were almost too hot to touch, and dripping with honey, having that black sticky appearance. I took a nucleus under each arm and rushed to the apiary, and found two queenless colonies in chaff hives. I raised the cover and set a nucleus inside of each one. As soon as I pried off the wire cloth, the bees boiled out all over the sides of the hives, too wet to take wing; but before they could get outside of the chaff hive the cover was put on. Of course, the brood-combs to the chaff hives were uncovered. Now the sticky bees could not get to the open air without crawling through a good populous colony, and I expected that this good populous colony would lick them clean and reconcile them to staying indoors before they had a chance to find an entrance. It turned out exactly as I expected. Every bee, including the queen, had his face washed and hair combed, and looked quite respectable by next morning; but they had a black, shiny look that they never got entirely rid of. None crawled out of the entrance to go off and die, that I could discover, at all. After you have got a good quantity of bees, of course it will take a good strong healthy colony to slick them all up. During hot weather we place a sheet of wire cloth over both top and bottom, and have the bottom so arranged that it can not be set on the floor so as to cut off ventilation. With plenty of air, the hottest weather does no harm.

WHAT CAUSES SWARMING?

FRIEND DOOLITTLE TAKES SOME EXCEPTIONS TO DR. MILLER'S INTERPRETATION OF FRIEND HASTY.

IT was with no little interest that I read the article by Dr. Miller, found on pages 441 and 445 of GLEANINGS, in which he tries to interpret what friend Hasty says about what causes swarming, in a most singular way, which interpretation is fallen in with by the editor, to a certain extent at least. Apropos of this I find an article in

the June *Guide*, written by the editor, in which he says, "If from any cause the food secreted by the nurse-bees is more than is required to feed the larvæ and queen, it is stored in abundance in certain cells which become queen-cells, and hatch queens. The capping of the queen-cells, or closing the doors to these storehouses for the food secreted by the nurse-bees, causes a commotion in the hive which results in swarming." Dr. Miller confesses that he "had never thought of just that reason" before, and for this reason he is excusable for being "taken in" so easily. Let us see what there is against accepting such a theory as that interpretation of Bro. Hasty's words by the doctor, and that brought out by friend Hill, in the *Guide*. In the first place, "these storehouses" (queen-cups) are built weeks before any food is placed in them, and long before the hive is filled with brood, and also when the unsealed brood largely predominates over that which is sealed, this showing that preparation for swarming is commenced long before the nurse-bees think of having more chyme in their stomachs than they have use for; showing, also, that preparations are being made to "multiply and replenish the earth" nearly as soon as the assurance of something for the sustenance of a new colony is warranted by the blooming of the first flowers. Now let us watch these embryo queen-cells and see what becomes of them. When the colony gets a little stronger, and are yet spreading their brood far more rapidly than at any other time in the season, so there is no cramping of the unsealed brood as yet, for the same has not yet reached the outside of the brood-nest, we find the queen placing eggs in these "storehouses," yet so far there has not been a particle of food stored in them, nor will there be till these eggs are about to hatch into larvæ. At this time the bees begin to feed these larvæ, destined to become queens, the same as they do those in the worker-cells, gradually increasing this food, till at the end of 48 hours they do assume the appearance of being storehouses; yet in this, no one, it seems to me, can see any thing but a plan to perfect the queen larva according to the laws which govern the bees, if they will look at it in a reasonable light.

Again, according to the old adage that "corn will tassel out at about such an age, even if the stalks are not six inches high," we see weak colonies of bees making preparations, and swarming with these "storehouses" well filled with royal jelly, when the hive is scarcely three-fourths full of brood, half of which is in the unsealed state. I have so repeatedly had these weaker colonies of spring swarm, that I long ago gave up the idea which I used to entertain, that a part of my colonies were so weak that they would not swarm.

Once more: We have had a very peculiar season here in Central New York this year, in which something has happened which I never knew to happen before to so great an extent as it has done this year. Prior to May 20th we had the most splendid spring for bees which I ever saw, and brood-rearing went on at a lively pace, till, at the date above referred to, all of the stronger colonies had their hives from two-thirds to three fourths full of brood. With the 20th of May came a rainstorm which kept the bees in their hives for nearly a week, at the end of which it became so cold that ice formed in places a quarter of an inch thick. The cold kept on to a greater or less extent, together with rain, rain,

nearly all of the while (only now and then a pleasant day appearing), till June 12. At this time there was little in the hives save eggs, some nearly mature brood, and a hive pretty well filled with young bees which had hatched from brood which was in the cells on May 25, for brood-rearing was partially kept up for about a week after it began to rain. With June 12th came warm weather with sunshine; and as the rainy weather had brought on the white clover to an unusual extent, all colonies were as "busy as bees" in gathering the nectar which now began to be secreted by the clover, while the brood in the egg and larval form exceeds at this writing (June 18) any thing I ever saw before. Now, if our friends Miller, Hill, and Root were correct, that the accumulation of larval food was what caused swarming, the bees should not think of swarming now (but should have done so about May 28, when there were few or no larvæ to feed); for now there are apparently two larvæ to "one food," yet some of the strongest colonies have eggs in the queen-cells, preparatory to the issuing of swarms in the near future.

While the outlook before us is not good for honey, inasmuch as the brood which should have been in the hive, but was not, between May 20th and June 10th would have been the bees to gather our honey from basswood, still this poor outlook for honey has given a chance to prove the fallacy of this theory, that a surplus of chyme is the prime cause of bees swarming. How much easier for Dr. Miller to accept friend Hasty's words on page 460 ("how can young people be prevented from trying to set up a new domicile?") as applicable to the cause of swarming, rather than try to make out that there is some other cause for it than that implanted in the bees by the Creator of all things! Only as man interferes with the normal condition of the colony to so great an extent that their plans are all frustrated, can swarming be kept under our control; and, as I said on page 460, I believe that such frustration is against the best interests of the apiarist who is working for comb honey. Friend Cook thinks that I am too positive (GLEANINGS for June 1st, page 446) in answering query 125. I would ask friend Cook if we who believe in the Master's teachings have not a right to trust him to a positive extent, when he has said, "Shall not the Judge of all the earth do right?" If I can not be positive here, I have no assurance that there is any thing positive in this world. G. M. DOOLITTLE.

Bordino, N. Y., June 18, 1889.

Now, old friend, my observations do not quite agree with yours, as given in the above. I have seen black bees a great many times start queen-cells about swarming time. After the queen-cell was well along, an egg would be found in it, and then the milky food. Perhaps I may say I have never seen very much natural swarming with the Italians; but I have a great many times found the first indication of a queen-cell (that is, the first that my eye caught hold of) was an accumulation of milky food around a small larva; and when Adair, years ago, suggested that the bees, at least sometimes, put this milky food around a certain small larva, just because they had no other place to store it, I began from that time forward watching for instances to corroborate his theory, and I have found a great many of them. I think I could take you out into our

apiary now, and find just such cells; and in 21 or 48 hours more a queen-cell would be built around it. Another thing, our weak colonies here in Medina do not swarm. Our corn does tassel out when it is about so old, as you say; but we have never had the swarming mania with us to such an extent that colonies that only half filled their hives sent out swarms. We have often read of it, I know, but it does not occur here in our locality. In regard to the peculiar state of affairs during the past few weeks, it is just as I should have expected. The bees could not get out of the hive and gather honey and pollen, therefore they did not have enough milky food to feed the larvæ, to say nothing of piling up some of it to start queen-cells. Most truly does the Judge of all the earth do right; but one of the most righteous acts of his, as it seems to me, was leaving this universe for man to improve, and supplement nature. Instead of letting the calves have all the milk, we by artificial means take the milk from the cows ourselves; and in a like manner we take the other good things he has placed within our reach. Besides, we improve the cows, and improve the strawberries, and make Nature do a thousand other wonderful things she would never have thought of doing without our help. The above are simply A. I. Root's views. He may be wrong and you may be right; but, more likely still, the truth may be somewhere between us.

MOVING BEES SHORT DISTANCES.

HOW A CALIFORNIA APIARIST MOVED 75 COLONIES
¼ OF A MILE SUCCESSFULLY.

LAST January I bought 75 stands of bees, and rented a location where they were for three years, with the privilege of moving my other apiary on the same ground; but I preferred to locate my bees further up the cañon, a quarter of a mile to the north. The first week in January I moved my apiary of 90 colonies to said cañon, a distance of 8 miles. Now, my 75 stands stood where they were when I bought them; and to move them two feet a day for a distance of a quarter of a mile, through a winding narrow road up the cañon was more than I cared to do; so I went to work and fixed every thing ready a day or so beforehand; then about sundown I shut them up in their hives and commenced to move my bees. I moved them all that night to where I wanted them. After I got through moving the bees I set to work to make the old location look as strange as possible by clearing every thing away that was movable. About 8 o'clock next morning bees were flying thick about the old location. I kept watching them, and soon found they were taking possession of an empty hive about 50 yards away. I secured the empty hive and carried it into the honey-house; but not before I had been severely stung by the bees; then they tried to get into the honey-house; but they had no show but to go back to their hives in the new location, which they did, but not before showing meanness, for they got on the war-path. They kept my wife in the house with doors closed, and I was kept in the honey-house watching them and the chickens, but it didn't last long, for the chickens gave them the right of way, and hid themselves

in the brush; then when the bees found that there was no place for them but to go back to their hives, and nobody or nothing to pick on, they went back; and before noon the moved bees were working, bringing in pollen and honey as well as they were the day before, and I haven't been able to see any difference in them since, and I don't think there was a pint of bees lost in all. Had I left a box, or something for them to cluster in, I know the result would have been different.

May 1, 1888, I moved 9 stands of bees about 20 rods. I moved them in the night time. The next morning a great many of them came back, loaded with honey and pollen. They began to get cross, and I gave them a large box to cluster in, and that made them peaceable; before night the box was well filled with bees. Fully half of the nine stands had returned. That night I carried them back, but they would not stay; and after carrying them home three or four times I got tired. The moved stands were so weakened by the loss of bees that they didn't recover to be of any use to gather honey for three weeks. Now, had I not given them that box, all would have been well in a few hours.

Bees always know the way back to the place they start out from in the morning, just as well as they know the way back to a certain tree or plants in bloom and yielding honey. But they are not going to leave their old location and stick to the new, if you give them any show, some colonies excepted.

San Bernardino, Cal., Feb. 2, 1889. R POWELL.

I am greatly interested in the experiment you mention, for it certainly was an experiment, and one on quite a large scale. I was well aware that the bees could be *made* to find their hives where they had been moved for only a few rods; but I did not suppose it possible that the bees of a whole apiary could be made to go a quarter of a mile. The point you mention, where you state that they *know* where their home is, as well as they know where a tree is that yields honey, is very ingenious, and I am not sure but you are right about it. Suppose, however, your neighbor had hives of bees nearer to you than the new location a quarter of a mile distant. In such a case the bees would probably go into your neighbors' hives, or into any neighboring hives, may be into trees, or cavities in the rocks, if such happen to be near, so the plan is somewhat risky. In my experiments of years ago, in giving bees a flight in a greenhouse, I experimented quite a little in moving the hive to different parts of the room. The bees were working on a tray of meal. I moved the hive away and then watched to see their surprise when they did not find it. After flying about, wearied and perplexed, a while, they would go back again to the meal, and sometimes gather and pad a little more. Then they would start again, and go like a shot to where the hive had always stood; but when baffled and discouraged again, they would go to the meal. Finally one bee, in circling about, came near enough to the old familiar home to get sight of it. He instantly dropped at the entrance, and with his wings raised a loud call. In a little time his comrades joined him, and then what a rejoicing there was! After that, none of them had any trouble, or trouble of only short duration. The point you make

is, that, instead of giving them a box or some combs to cluster on, we should give them nothing of the kind at all. Well, in such cases I have known them to cluster on a bush, and hang until they died.

THE ORIGIN OF THE SWARMING IMPULSE.

FRIEND HASTY GIVES US SOME FURTHER SUGGESTIONS IN REGARD TO THE ABOVE.

AS to the matter on page 445, friend Root, I think you have chastised brother Miller enough for this time, and I won't get after him any more. In fact, it is hardly in order for the schoolmaster to whip the offender awhile himself, and then say to the other boy, "Billy, now you come and pound him for a spell."

Friend Miller has the idea correctly, except that he has limited it a little. I wish it to include the queen as well as the workers. Wait a moment before crying "Nonsense!" at that. The queen is indeed lighter, smaller, and laying less rapidly at the time of swarming than before. She does not like to extrude eggs and throw them away; and the check of egg-production, although it causes the ovaries to decrease in size, causes at the same time the blood to assume a peculiarly enriched character. She, as well as the workers, is "loaded up," as you express it, but, carrying the load in a different place from usual, she feels engorged and restless. Also, I wish it to include not merely the larval food in process of secretion by the workers, but also the elements in the fluids of the bee that supply material for larval food.

The experiment of returning a swarm after taking out the sealed brood, and returning unsealed in the place of it, is interesting, but conclusive in one direction only. If the swarm comes out again it can still be said, "This expedient would have prevented the swarming impulse from getting started, but is not sufficient to eradicate it after it is fully inflamed. You are able to prevent your daughter from wishing to run away with a young scamp, if you attend to the matter in time; but after she has fully resolved to do so, you may be unable." Let us keep a general lookout in all directions, to see if we can ever detect the swarming impulse getting started among bees who are fully employed, or a little overworked, at brood-rearing. Experiments in the other direction may be worth trying. Many report apiaries that give only three or five or ten per cent of swarms. Let two or three of the steadiest colonies in such be selected, and take away the frames of eggs before larval food is put in them to any extent. Give them sealed brood, or newly emerged bees enough to fully compensate the loss they sustain, and see what the result will be. If other things are favorable to swarming, I feel pretty sure they will swarm very soon. Unfortunately, it is here possible to claim that dissatisfaction and annoyance caused the swarming, and not the "loaded-up" condition of the bees.

Perhaps the theory also explains why bees so generally swarm when the first batch of queen-cells is capped. Royal jelly is supposed to be nearly identical with the white food put in the worker cells just about the time the eggs hatch. When there are few eggs hatching, the workers avoid engorgement by crowding great masses of this food

into the queen-cells. When this resource is cut off by the sealing of the cells, the crisis occurs, and out comes the swarm. There is usually a younger batch of cells in the hive; but I think that, in the building of queen-cells, bees divide up into *clans*, each cell or group of cells being in charge of a separate clan, which "holds the fort" steadily, and does not let others enter. E. E. HASTY.

Richards, Lucas Co., O., June 7, 1889.

Friend H., your concluding words just now remind me of a theory put forth by our old friend D. L. Adair, perhaps 20 or 25 years ago, in the *A. B. J.* It was this: That when the interior of the hive got into the condition you have described, so that the nurse-bees were full of milky food for young larvæ, without any place to put it, then, as they could not do any better, they agree to stow it away somewhere until needed. One starts it by placing his around a worker larva, giving this worker a great deal more than he needs; then some other bee takes the hint and deposits his superfluous larval food in the same place. To make it stay in the cell, an enlargement is made, and this forms a rudimentary queen-cell, and the superabundance of food causes this worker larva to become a queen. Adair suggested that the fruit-buds on trees were formed in a similar way; and it is well known that any thing that checks the growth of the tree tends to the development of fruit-bearing buds. I do not know but Dr. Miller will call both of us "visionary fanatics" when he comes to read the above. A good many of us laughed at friend Adair, years ago, when he started the idea; but I confess that it looks much more reasonable now, after having *lived* and *learned* all these years, than it did then.

RAMBLE NO. 18.

HE DISCOURSES ON THE POSSIBILITIES OF MAKING A FIVE-CENT PACKAGE FOR HONEY.

THE Rambler is always delighted to visit an ingenious bee-keeper. There are so many new things, or new ways of performing old things, that all the faculties are kept on the alert to learn the new things. Oh, no! there is nothing dull about a *live* Yankee.

In our Ramble to the apiary of Mr. John Henderson we found a Yankee and many new ideas. This ramble would be of undue length, to mention all to be seen; but at this time, when our friends are thinking of marketing their honey, it will be well, perhaps, to confine ourselves to what Mr. H. has done in the line of five-cent honey-packages.

Long before there was any thing written about penny packages for honey, Mr. H. was experimenting. His idea was to get a package for candied honey that could be eaten from the hand cleanly like an apple, and to be sold for five cents. Honey on a stick might do for Canadians; but according to Mr. H., no true Yankee would ever be seen going around with such a daubing arrangement so long as wood and metal could be tortured into a mechanical shape to prevent it. So our friend set himself to work to make the package that would sell in every candy-store, and surfeit every boy and girl in the land with honey.

His thoughts first turned to a wooden box as the

cheapest material. The delivery of honey from the box was to be automatic. To accomplish this, instead of turning out the whole interior of the box,



FIG. 1. HENDERSON'S HONEY-TIN.

candied honey. Screw on the cover; give it a turn in the right direction, and the honey comes boiling up through the orifice, to be eaten off by the purchaser—see Fig. 1.

Our friend was not able to make costly machinery for the manufacture of these boxes on a large scale, and he next turned his attention to a unique device which he called his "canteen honey-package." This package was suggested by the soldiers' song, "And we drank from the same canteen." Our friend's honey-canteen was about the size of an ordinary blacking-box, having a bright ribbon attached by which to carry it, and with an orifice in one edge for the exit of honey. In Fig. 2 the dotted line shows a strip of thin flexible tin, fitted inside the canteen, and attached at one end to the canteen, and at the other end to a wire which projected in the form of a crank. Turn the crank, the strip of tin is wound up, and the honey is forced out of the orifice, to be eaten.



FIG. 2. HENDERSON'S HONEY-CANTEEN.

The next package, shown in Fig. 3, Mr. H. spent much time upon, and thought he had found just the thing; and the Rambler thinks this package, in mechanical operation, can not be much improved for this special purpose.



FIG. 3. HENDERSON'S HONEY-TUBE.

Mr. H. observed some artistic members of his family at work upon an oil painting. The bright colors were placed upon the palette by being squeezed from what appears to be a tin tube. Mr. H. scratched his head and scratched out this idea: If he could get those tubes of the right size they would fill the bill for his five-cent package. After much correspondence he found that a greater proportion of these tubes were made in France, from drawn tin. The tin, by proper machinery, was drawn down very thin. A firm in New York was found that could make these tubes and a few were ordered; but instead of having the little lead screw cap, seen on the paint-tubes, the honey-tubes were left open full size, about an inch in diameter, with a heavy supporting rim around the edge. The lower end was folded like the ordinary tube. It was

then filled with candied honey, a bright label put on, and a piece of tinfoil put over the top, and it was ready for market. To partake of the sweetness within, take off the cap, squeeze the bottom slightly, and the honey is forced out in small or large mouthfuls, according as you squeeze. The Rambler was so pleased with them that he has one now for a keepsake, and as a curiosity to look at, for that is all we can do with it at present; for, being made of seemingly pure tin, the tubes alone would cost nearly five cents each in large quantities. Mr. H. being disappointed in the cost of the tin tube, then experimented with a paper tube; but it looked so poor by the side of tin that our friend gave up until he can find some better substitute, or manufacturers who can give better terms on manufacture. Mr. H. reckons that a two-ounce package should not cost over 1½ cents, or, better, one cent.

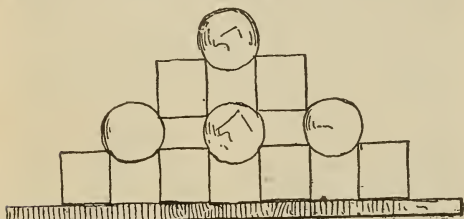


FIG. 4. THE HARMER AND RAMBLER FIVE-CENT PACKAGE, PILED UP.

For the present it seems there is nothing left in the five-cent line but the neat comb-honey package of Bro. Harmer, and the Rambler's round section. The round section is easily made, but the Harmer is easier to pack and handle. We hope success for it the coming season; but the Rambler has not the patience to make them.

We have thus presented to your readers our discoveries and the obstacles in the way of the five-cent package. That some one may further develop the idea is the wish of Mr. H. and the RAMBLER.

I am very glad to see you studying on this matter of a cheap package for honey in small quantities. It seems to me, however, that none of the things you mention can possibly be afforded for a 5-cent package. The two first might possibly be made large enough to be worth 10 cts., or perhaps even 25. No. 3, it seems to me, might do very well for a dime. There has been on our table for perhaps two years a little tin box with a wooden cover. It is called "Howe's sample mailing-case," patented Sept. 9, 1879, and is intended for sending sugar and other similar articles by mail. It is simply a shallow tin box, not unlike a blacking-box, but much smaller, and deeper. At the center of the bottom of the box a hole is made. Through this is soldered a common screw, of such a length as to reach exactly as high as the sides of the box. Now, a wooden cover is held in its place by being turned on to this central screw. It may be screwed up so tight that the edges of the tin cut into the wood as it goes around, so as to make it tight enough not only for candied honey, but I should think it would be perfectly safe for liquid honey. The box is manufactured by Dailey Brothers, Detroit, Mich. I do not know the price, but they could, without doubt, be furnished for a cent apiece, in quantities, and large enough to hold not on-

ly 2 ounces, but perhaps even 4, of honey. The box is remarkably strong. The wooden cover projects a little so as to protect the edges of the tin, in such a way that even the worst treatment it may receive in the mailbags could scarcely do it any injury. I have long thought that it was perhaps the cheapest and most substantial package that we could get hold of. We will at once make investigations, and see how low they can be furnished.

QUEEN-CELLS ABOVE PERFORATED HONEY-BOARDS.

ALSO SOMETHING IN REGARD TO FRIEND DOOLITTLE'S NEW BOOK.

ANY one would suppose, Mr. Editor, by your foot-notes at the end of J. D. Fooshe's article, page 490, that you must have read my new book on queen-rearing rather carelessly, for in it I tell that queen cells will be completed when placed over a populous colony at any time of year when the bees of any colony are sufficient to enter such upper story, as to their numbers, where there is a queen-excluder between the upper and lower stories. You seem to think that the swarming fever has something to do with the matter; but such is not the case, as I have proven for years, and especially so during the past three or four weeks of scarcity of honey, during which bees have been on the verge of starvation, yet in no case where I have put prepared cells above a queen-excluding honey-board have the bees failed to carry out and complete the cells, perfecting them to the fullest extent, so that queens reared in such cells have come up to the highest type of perfection, even though the colony below were living only from "hand to mouth." The bees in the upper stories seem to be placed in the same condition, or at least feel that they are, as when they are about to supersede their queen on account of old age, in which case all are aware that bees will rear good queens, no matter what time of year it is, or whether honey is coming in or not. In all of my six years' experience with the plan given in my book I have never failed to have queen-cells completed when placed in an upper story over a queen-excluding honey-board (which plan is similar to that given by Mr. Fooshe), except late in the fall, when bees had gone into that quietude which they go into after the honey season is past. If we wish cells *then*, we must feed the bees so as to arouse them to activity, when they will complete queen-cells, so that as good queens will hatch from them as any which can be produced during the summer months, or in the height of the swarming season. I am not *guessing* at any of this, but speak it after a practical experience along this line for the past six years.

The plan as used by Mr. Fooshe, of getting the queen-cells under way before putting them in the upper story, is practically the Alley plan, as given in his book, which you in your head-lines call "an improvement on Doolittle's plan." That just as good queens can be reared in this way as by the plan of making cells of wax, which I outlined, I have no doubt; but the objections to it are, 1. That one or more colonies must be kept queenless to start these cells, which the colony having an upper story on are to bring to completion. A queenless

colony, without brood, as he describes, is of no value in the apiary, as a honey-producer; while in the way I work, no colony is kept queenless a moment on account of queen-rearing, but all are at work in sections or for extracted honey, just the same as if I were not rearing any queens at all. 2. Mr. Fooshe has to cut his nice worker combs up into strips, on which the bees build the cells. Where one makes a business of rearing queens this is quite an item; for after we have our combs all perfect in our hives it is a pity to spoil them by cutting out long strips for queen-rearing. By making the wax cups, no combs need ever be cut, where the vision of the operator is good enough to see to the bottom of the cells to take the larva out in transferring. The third objection is the most serious to me of the whole; and that is, that by his plan the cells must be handled very carefully or else they are easily mashed; and in any event a piece of the strip of comb must accompany each cell when it is detached or separated from the bar of wood to which it was fastened, which hinders it (the cell) from being used successfully in the queen-cell protectors.

Again, unless he kills a part of the eggs or larvæ with a match, as does Alley, he will have many cells built together, so that a part must be destroyed in separating them. By using the wax cups, the cells, when completed, can be picked off the stick where they were built, about as you would pick peas from a pod, while the base of them is sufficiently stout so that the queen-cells can be pressed into the combs of queenless colonies so they will be a fixture wherever you wish them, thus saving the cutting of combs in placing the cells in the hives as we used to do, and as is pictured out in many of our books.

In nearly all of the comments on my book, I see many suppose that the book was written for queen-breeders, who follow the rearing of queens as a business; but this is a mistake. The book was written for the sole purpose of benefiting *all* in the bee-business, from the man who counts his colonies by the thousand and down to the amateur who has but two or three. All parties want queens for any case of emergency which may come up, or for the purpose of superseding those which are past their usefulness, or are not of the "blood" which they wish, or to give to the parent colony after the old queen has gone out with the swarm, so that second swarming may be prevented. How handy it is, then, to rear such queens in an upper story, get them fertilized in the same by slipping in a perforated zinc partition so as to inclose a comb or two on each end of the hive, from which the queen may issue to meet the drones, and, after returning, be kept laying here till she is wanted for use, thereby aiding the queen below with brood all the time she is being held before she is wanted for use! The possibilities which are before us along the line which this perforated metal may bring us, have only begun to dawn upon us. Queens can be reared and fertilized by the thousands in any apiary, and yet no colony be kept queenless for a single moment, nor any nuclei made, but all work in the apiary be going on just the same as if no queens were being reared. The advent of the perforated metal is likely to mark an epoch in our history, fully equal to that of the honey-extractor, movable-comb hive, or any thing of the kind.

Borodino, N. Y.

G. M. DOOLITTLE.

Friend D., I shall have to own up, and

beg pardon. It is true, I have not, or had not until this morning, June 26, looked at your book more than to turn over the pages a little and look at the pictures. The reason is, that I am already overworked on reading things that I *must* read; but I now find that it would have been far better had I neglected some other things, and given your book the careful attention it deserves. When Ernest made his review notice, he read the first six chapters; but I now see that he did not get to the most important matter in the book at all. I want to say to our readers, that friend Doolittle's book is as interesting, at least to me, as any thing I have ever read in regard to bees, hardly excepting father Langstroth's book when I first got hold of it. One reason is, that it is right along on a line where I worked for months, several years ago. I experimented by placing wire cloth between the upper and lower stories. Perforated zinc was not then known—at least I had not at my command any thing to permit the worker-bees to go above and hold back the drones and queen; therefore my experiments amounted to but little more than having queens raised in nuclei above, in strong colonies. These nuclei were either shut off entirely by wire cloth, or else these drones and queen had free access to the upper story. By having upper entrances, I succeeded in getting queen-cells built and queens fertilized to some extent; but it did not pay, and I was continually annoyed by being obliged to disturb the nucleus every time I wished to get into the lower story of the parent colony. This latter point, if I understand, is still an objection to Doolittle's method. I do not know whether friend Fooshe had read friend Doolittle's book when he wrote or not; but it is true, that the whole plan is given in very full details in chapter 7 of Doolittle's book. In chapter 13 we are told how to get queens fertilized in the same hive where there is a laying queen. These two chapters are certainly worth the price of the book to any bee-keeper. In fact, it seems to me that every man, woman, or child at all interested in bees, ought to read friend Doolittle's book. The accounts of his discoveries read like a book of fiction. In fact, it sounds to me in some parts like the *Arabian Nights*; and yet it is absolutely true, every word of it. You can verify it yourself with your own bees. I know it, because I have experimented all along in the same line. Those who are unfamiliar with this intricate, complicated, and wonderful matter of securing queens from an egg that would, in the usual course of events, have produced a worker-bee, will become familiar with the matter by reading friend Doolittle's story. The whole of it seems to have been written in friend Doolittle's happiest vein. I should judge that he had given the book great care and pains; and I believe that is the way he usually does every thing. One reason why I did not give the book more attention, I supposed it was a good deal a summing-up of what had been already given in the journals. But a great part of the book contains information that has never been in print before, that I know

of. Of course, it will be more interesting to those who raise queens largely than to those whose business is mostly honey-raising, and who, for the most part, let the queens raise themselves. It seems to me, however, that we can all of us smile a little when we read the book, to think how often its author talks about "nature" and nature's methods. Why, the plan he gives is the most unnatural, and there is more tinkering with nature, than in any thing that has ever before been written, and yet his methods are in perfect harmony with the natural instincts of the bees.

UNFINISHED SECTIONS.

SOME GOOD SUGGESTIONS FROM JOSHUA BULL.

IN response to your repeated invitation for reports concerning the use of unfinished sections, I wish to say that, for several years past, I have used all I could get of them. Not two or three only, just to entice the bees into the supers, but when I have plenty of them I fill some supers full of them; and the bees will fill with honey and cap them several days sooner than where full sheets of foundation are used in the sections, other things being equal, even though they may commence just as readily upon the foundation as in the other. Where foundation is used it requires a large cluster of bees in the super all the time, to carry on comb-building successfully and rapidly, when, if the combs are already built, the most of those bees can go to the field to gather nectar during the day, and evaporate it at night, as friend Doolittle has so clearly shown, and so far as quality or appearances are concerned, I should feel quite safe in offering to give to any man, be he novice or expert, all of such sections that he could detect, judging the honey alone, when they were mixed up with others which had only foundation in them when put into supers. Some of the wood might be a little more soiled, or stained with propolis, or something of that sort, by which an expert might possibly detect them; but not from the appearance of the honey or comb. I never put a section containing old honey, partially capped, into a super to be finished up, without first removing all cappings; and I never put in one containing any dark honey in time of white-honey harvest. And even empty combs that were built in the fall, when the weather was cool, are often thicker and heavier, and sometimes much darker-colored than combs built in June or July. Any such dark or heavy combs should not be used for the storage of white honey, for reasons which are too obvious to need explanation.

FLAT-BOTTOMED FOUNDATION.

Experiments last summer with different kinds of foundation, considered in connection with my experience in eating comb honey during the past year, has inclined me more than ever in favor of the use of flat-bottomed foundation in sections, because, in the first place, it is made thinner than other kinds; and then the bees, in shaping the septum, work it down yet more until the septum is not much thicker than the side walls of the cells; and when eating honey stored upon such foundation there is not such an accumulation of wax in the mouth as is usually the case when natural-base foundation is used. And in spite of all that can be

said to dispel the objections to this accumulation of wax in the mouth when eating comb honey, the fact still remains that most people like honey best when the wax is least conspicuous—at least I do.

OPEN-SIDED SECTIONS.

Before closing I want to say a few words in favor of open-sided sections. I tried a few hundred of them last year, and was so well pleased with the result that I have bought 2000 of them for this year's use; and if my present impressions prove to be well grounded, I think that I shall eventually use them exclusively. I find that, if the openings in the side of the sections are made $\frac{3}{8}$ of an inch deep, these open-sided sections can then be used in the common wide frames with ordinary separators without perforations. There must be a bee-space of about $\frac{3}{8}$ inch between the comb in the section and the separator; and if there are no perforations in the separator where the sections meet, it just gives an even passageway from one end of the frame to the other, and the bees will have no inclination to build comb over the edge of the sections to unite it with the comb in adjoining sections. I prefer tin separators, because wooden ones are liable to warp or bulge, and close some of the openings and deform the comb in some of the sections. To prevent the propolizing of the section to the end-pieces of the wide frames, I make the latter with a little block tacked into each corner of the frame, in such a manner as to hold the section $\frac{1}{4}$ inch from the end-piece, thus forming a bee-passage between the section and end of wide frame. This obviates all difficulty in that direction. I aim to have the sections fit so closely that the bees can not get any propolis between them, nor between the sections and the top or bottom bars of frames; and, furthermore, when sections are tightly pressed together it keeps them all true and square; and when they are filled with honey they brace one another up, bridge like, which helps to keep them from sagging away from the top-bar.

I have also devised a sort of clamp super, in which to use open-sided sections without wide frames; and from the little experience I had with it last year, I feel quite sanguine that it is going to prove to be a very satisfactory arrangement.

Seymour, Wis., Mar. 28, 1889. JOSHUA BULL.

We are exceedingly obliged to you for your very valuable reports on all three of the above items. Even though our experience may not be like yours, we are glad to have such facts furnished us from actual experience. In regard to flat-bottom foundation, although we advertise and sell both kinds, we sell ten pounds of the regular-base foundation to one of the flat bottom. There is this to be noticed, however, that there seems to be a slight increase in the amount sold, of the flat bottom. Whether this is due to the excellent season, or whether the flat-bottom foundation is growing somewhat in favor, we can not say. In regard to the open-side section, it seems to be going somewhat out of public favor. We constructed special machinery for making, and we expected a heavy run, but were very much surprised to find that there is very little demand for them. This may be due to general conservatism, or to the fact that a few have been tried, and were found wanting. The few sold have been for the most part to foreign countries.

MANUM IN THE APIARY WITH HIS MEN.

PRACTICAL SUGGESTIONS IN REGARD TO WORKING FOR COMB HONEY.

JULY 10.—“Good-morning, Scott. Here I am again.”

“Yes, sir, I see; and I am very glad to see you. I have been looking for you these two or three days.”

SMOKING BEES WHEN THEY DON'T NEED IT.

“Well, I have been very busy of late in my home apiary of 60 colonies. I also have now over 100 nuclei to look after, and it is no small job to look after them and keep them busy—or, in other words, keep them supplied with queens or queen-cells, as the case may be. I have to be very careful, and not allow a young queen to get to laying too much before shipping her, or she is not safe to ship in that condition. I am having so many orders for queens just now that it takes some time to cage and mail them; and, besides, I have to look after those two new hands pretty close. I sometimes think I will never hire a boy who has never handled bees before. It makes it too hard for me during the honey season; but I shall try to worry through it this year. We will now go over the yard, to see how well the sections are being filled. Here is a clamp with every section capped over. You must watch the sections now. Although you have tiered up all around, they will finish up the top ones very quick when there are only two tiers. Where you have three or four tiers they are liable to finish two or three tiers at the same time, hence they will be longer about it. We will remove this upper tier and raise the lower one, and place empty ones under it.

GETTING THE BEES OUT OF BOXES, ETC.

Now set the two finished clamps down on the ground in front of the hive, resting one end on the alighting-board; set them up edgewise—there—so. That is another advantage these small clamps have over large ones, as there is no danger of their tipping over. No, no! don't smoke them, as that will cause the bees to bite holes in the cappings, and spoil the looks of the honey. Just let them sit there until the bees work out of them of their own accord. There is no danger of robbing while the bees are getting honey as fast as they are now. I left out nearly a ton in this way once over night; having taken it off after supper, the bees did not all get out before dark, so I left it to carry in, in the morning.”

“I should hardly have thought you would dare to leave it out over night, for fear of robbers,” says Scott.

“Oh! bees don't rob during a flow of honey, especially at night; and as for the boys—to whom I suppose you refer as the ‘robbers’—I have no fears. I have kept bees for 19 years in our village, and I have never, to my knowledge, lost a single pound of honey by night robbers. The boys understand that it is not necessary to steal honey in this section of Vermont. I have instructed all of my men, as I did you early in the season, to offer every person who visits the yards all the honey he wants to eat; and if he objects to eating honey clear, offer him a section to take home. In this way people will not only refrain from disturbing the bees, but they will usually speak well of the honey-bee, whether they do of the bee-keeper or not.”

“How is your scale hive doing?”

“Well, 18 lbs. is the best day yet—that was yesterday. I hardly think I shall get 33½ lbs. this year, in one day.”

“I don't know about that. You have a good working colony in that hive; and if we get just the right kind of weather when basswood gets at its height they will come pretty near it. It wants a hot sultry day, when the atmosphere is full of moisture. Should we get such a day just at the right time, I think you will beat the old record. It is not every year that we have just the right kind of weather at just the proper time to secure such a record. But I am in hopes one of these days—or years—to be able to report 50 lbs. from one colony in one day.”

ONE REASON WHY SOME COLONIES DO NOT WORK IN BOXES.

“Scott, what is the matter with 26? I have just been through that row, and I notice they are not doing much in the boxes.”

“Well, sir, I don't know what the matter is. I had noticed they were not doing well, yet they seem to be working lively.”

“Have you looked them over lately, to discover the trouble?”

“No, sir; but I intended to to-day.”

“Well, I will look in and see if I can tell the cause. Ah! I see; they are storing their honey in the brood-combs. They have but little brood, and that is not very compact in the comb. I think we have an old queen here. There! you see, in this comb there are but few eggs, and they are scattered here and there all over the comb. That indicates a played-out queen, and here are queen-cells. Where is the record?”

“I don't know. I must have lost it. Here is last year's record.”

“All right; that reads, ‘Swarmed, and queen returned.’ She was then two years old, hence she must be three years old now, and therefore she is exhausted. There is no use trying to winter a two-year-old queen. They are too liable to fail either in early spring or during the honey-flow. With the amount of work I require of them, two seasons' work is all I can expect of any queen, to make it profitable. We will hunt her up. There she is! catch her and pinch off her head. You see she is very clumsy and small, compared with a good young queen. You may now uncap all the honey they have in these brood-combs, and just at night introduce a young laying queen; and my opinion is, that you will soon see this honey change places, and in its place you will in due time find brood. Now, as you take off honey you may carry it into the first room of the honey-house; and, at your leisure, scrape off any brace-combs or propolis there may be on the bottom or tops of the clamps, and then store it in the plastered room to ripen. I think the next time I come you will have a load for me, so I shall probably come with two horses and take home a ton or more. You will then see how I manage to haul my honey without getting my horses stung.”

July 15.—“Hello, Edward! Your bees, I see, are busy this morning. I came by the Hardscrabble road this time; and as I got directly between the apiary and the Hardscrabble ridge, where there are so many basswoods, I surely thought at first there was a swarm passing overhead, as they made such a roaring. I stopped my horse and listened; and I assure you it was sweet music to me. I could also

see them plainly as they made a curve to get around the Barnum knoll and a clump of trees; it seemed as though they were running races, and each bee was trying to get there first. I noticed that the homeward-bound bees flew much lower than outward-bound ones, owing, I suppose, to their being heavily loaded. We talk about a 'bee-line,' but these did not go straight, as they made quite a curve around the knoll instead of going over it. I have come to assist you to take off what finished clamps there may be in this yard. Yesterday I was with Henry, and I found he had a good many all finished and ready to come off. He had been so busy that the boxes had been neglected; however, the honey was not soiled a particle. Here are four clamps, well capped, on this hive, and the other two are well advanced; and if the weather holds warm a few days longer they will finish them up. I think we will not put any more on this hive, unless you have a clamp of nearly finished sections."

"Yes, sir; I have two or three such clamps."

"Very well; then in two or three days, if it holds warm, you may put on one of them. As we can not expect basswood to hold out more than five or six days longer at best, we must reduce the storage room in order not to be left with a lot of unfinished sections. Of course, we shall have some; but let us try to have as few as possible. You may also now fill up the brood-chambers with comb or foundation; that is, wherever you find a colony that has only ten or eleven combs, give the bees the full complement of twelve combs. You know that all the new swarms that came out before June 20 were hived singly and on only ten combs, with a division-board on each side to take the place of the missing combs. Now, then, just draw out these division-boards, and let a comb slide down in their place. This can be done without disturbing the other combs or the bees. These two combs being the two outside ones, I am in hopes the bees will fill them with honey before the queen finds them. A few years ago I did not do this, as then sugar was cheaper to winter on than honey; but now—oh, dear! how things have changed! and it is cheaper to winter on honey than on sugar. I want these combs put in now, because we do not have a late flow of honey here as they do in many places, especially west; and sometimes I think it is all the better for me that I do not; because if I did I should expect my bees to have the dreaded bee-diarrrhea, which I think is caused by a poor quality of honey gathered late in the season, as well as an excess of pollen. Now, another thing: I want you to hunt up all the two and three year old queens in the yard. You will readily find where they are, by the records. Kill them, as I do not intend to winter a queen that is over one year old. Now is the time to do this work, while the bees are getting honey. They are not so cross now as they will be at the close of the honey-flow, nor will they rob as they would then. You may then introduce young queens from your nuclei; and if you should be short of queens I will bring you some from home. This is the time to commence preparing the bees for winter, and requeening is the first work in preparing for winter—with me. You are not obliged to do this all to-day or to-morrow, but do it as you have time, without interfering with your other work.

A. E. MANUM.

Bristol, Vt.

I am very glad indeed to see you caution the boys about smoking the bees when there is no need of smoking them. A great many beginners get into such a stereotyped way of puffing smoke into the colonies that they do it even when the bees are on their very best behavior. It reminds me of some mothers who seem to take it for granted that babies must be spanked about so often on general principles. Now, when I see a baby spanked, that is doing its very best to be good, it always puts me in a fighting mood, and I feel the same way when bees are smoked that are just as peaceable and well behaved as any thing can possibly be. I have seen bees go for the cappings right off as soon as they were smoked, when they would not meddle with them at all if the smoke were kept away.—Your hint in regard to keeping an eye on the age of the queen illustrates how exceedingly important it is that the bee-keeper be constantly on the watch, and that he know what is going on, even inside of every hive, all through the honey-flow.—I am glad the boys in your neighborhood do not steal. Friend M., is it not because you are a Christian, and are following the precepts of the Master?—I have often stopped and listened to the "sweet music" you tell us about. You say, in conclusion, that you do not intend to winter any queen that is over one year old. Now, if I understand you correctly, I do not believe we should quite agree on that. A queen that had given us a tremendous crop of honey during one season should certainly have a chance to do the same thing the next season—that is, if she seemed all right, and nearly or quite up to her former vigor. Perhaps, however, you mean that you would let them go through the second season.

HIVES.

FRIEND HEDDON OFFERS SOME SUGGESTIONS.

FRIEND ROOT:—I desire to level my gun and fire away directly at you; and if there is any thing of sufficient value in this article to publish, do so; if not, read it over and we will have it between us. I have been much interested in your Dovetailed hive with my break-joint bee-space honey-board, etc. I eagerly open each number of GLEANINGS to see what you say about it. I have smiled, and I know many others have smiled, when reading your editorials on how popular the hive is. Now, let me go back a little. All these years, when you have been selling the Simplicity hive, and selling, perhaps, more than ten to every one I have sold of the Heddon-Langstroth hive (as I have named my modification of father Langstroth's great invention), I knew very well that the L. hive, as I used it, was very much better than your Simplicity, and that some time the truth would be known, and it would become very popular; but, of course, I can not reap the reward of my early discovery. You have a monopoly on advertising. Now, I am finding no fault. You have just what you have earned, the same as others do, and the same as the rest of us would have, had we worked it up; I am just trying to tell you how it is.

Now, your Dovetailed hive is to me simply my Heddon-Langstroth of the loose-bottom variety as I have been making and selling; but with the dovetailed corners added—not a new invention, but a new application, transferred from a soap or candle box, to a bee-hive. It is a *good* thing. Perhaps you are asking how I knew and now know that my modification of the L. hive was so much better than yours, the Simplicity. I will tell you. So very many bee-keepers like Professor Cook, Hutchinson, R. L. Taylor, F. P. Styles, and so on up to forty of them, who are bright, clear men, and practical and successful honey-producers, dropped the Simplicity and adopted my modification, that my experience and opinions were verified by these friends. But, now, friend Root, is not there something else better still? I do not expect you to see all at once the many advantages possessed by my new patented hive; but I do believe the time will come when you will fully realize and appreciate them all. In this article, let us leave out of the question the best feature of all—the divisible, alternating brood-chamber, and give our attention to the style of frame in combination with its adjustment to the brood-case. The standard eight-frame L. hive is ten inches deep. Now, if you make the same brood-case eight inches deep, and put in my close-fitting reversible frame, with end-bars loosely fitting the case, nine inches deep, it would give you the same capacity. Here is certainly an advantage; for shallowness in the brood-chamber is an immense advantage in every respect. It is easier to handle; it is better adapted to surplus storage; bees will breed up better and faster, not only in the spring, but at all other times of the year; and, lastly, they will winter better than in any deep hive. If I could get the capacity desired, as cheaply, and still keep the standard length and width, I would not have my combs over four inches deep. The fact is, the shallower the better. But, to return:

Suppose you make your dovetailed brood-case nine inches deep; nail a tin strip on the bottom of each end-piece, projecting inward an eighth of an inch; make the frames close-fitting, just the same as I make them in the new hive; and these shallow half-brood-chamber cases, put the screws through the sides, and clamp them up together snugly, so that the whole thing can be instantly inverted, as well as each frame being invertible at will, and now don't you see that you have a very much better brood-chamber than you possibly could have with the swinging loose-fitting frames? But these latter frames had some advantages; advantages which, in the minds of many bee-keepers, overcame the superiority of the close-fitting frames, but now with the new arrangement of adjusting the frames to the case, by which the glue is avoided and the frames can be handled much safer and quicker, and since wire and comb foundation have given us such straight combs, to me there is no comparison between the many advantages peculiar to this style of frame. The close-fitting frame, adjusted as in my patented hive, is, I am confident, going to win the preference with all practical honey-producers. Think of it; and after you have done so, and experimented, feeling sure as I do that you will find it as I have said above, then make the case shallow, using two of them for the complete brood-chamber of full size, and one of them when that valuable system of contraction is practiced, and you will ap-

preciate my new hive then as you now appreciate my break-joint bee-space honey-board.

Dowagiac, Mich., June 10, 1889. JAMES HEDDON.

You say, friend Heddon, that "I desire to level my gun and fire away directly at *you*." As there are two Roots here at the Home of the Honey-Bees, it is a little difficult to tell at which your gun is leveled. As, however, you place emphasis upon the personal pronoun *you*, the inference is that your weapon is directed at A. I. Root; but it so happens that A. I. R. is not the "game." He has neither said any thing in favor of nor against the Dovetailed hive. Neither has he "gone back on" the Simplicity. Perhaps I should say in this connection, the I means Ernest R., as your humble servant has written the editorials and other matter referring to the Dovetailed in particular. A. I. Root rather inclines toward the Simplicity, although he is not opposed to the Dovetailed. I make this statement so that the lack of consistency may not be ascribed to him. While in pattern the Dovetailed hive is similar, as you say, to the Heddon-Langstroth, yet in quite a number of respects it is different. The bottom-board is movable and has a raised rim, as you have already intimated. The body is dovetailed, and dispenses with the cleats at the top, and uses, instead, hand-holes. If you will turn to page 172 of that excellent work, Dant's Revised Langstroth, you will see that our Dovetailed hive is more of a copy of the Blanton hive than of the old-style Heddon. After we had settled upon the construction of the Dovetailed hive, I accidentally ran across the engraving of the Blanton hive in the Langstroth Revised, and was surprised to note that we had both hit upon the same thing essentially. I do not quite see why you should want to call the new Dovetailed hive a Heddon-Langstroth. It is more a Blanton-Langstroth. Blanton's hive has essentially the same bottom-board and cover. The two bodies are exactly the same, without the dovetails and hand-holes.

In regard to closed-end frames, you will see by my article in last issue, under the head of Recent Developments, that I admire some of their features. It is possible that I may one day become a convert to them; but from what I now know of them, I think I should prefer the Hetherington reversible metal-casting frame; or if this should not prove to be a success, the ordinary hanging frame. I have tried your close-fitting upright repeatedly. While your thumb-screw makes its manipulation more simple, yet you do not obviate the killing of bees between the bottom of the upright and the tin support below. Of course, you can avoid it to some extent by letting it down gently, and, by a slight pressure, causing the bees to slowly work their way out; but to handle every frame thus, I tell you, takes time; and after you have gone through the sixteen, you have examined only one brood-nest. You will say, handle *hives*, examine the brood-section at once *in toto*. I can't do it as yet satisfactorily. From my present experience I should much prefer full-depth closed-end frames (if I were to choose close uprights at all), with thumb-screw arrange-

ment, to the same half-depth, with the thumb-screw.

In addition to what Ernest has said, I may remark that I have rather objected to giving the Dovetailed hive so much prominence; and I think yet that a good many will go back to the Simplicity who are trying the Dovetailed, although I concede the advantages of the latter. I hope, however, that it will always be used as an eight-frame hive, and the Simplicity always as a ten-frame. In regard to copying, in one sense the Dovetailed hive infringes on a dozen other hives. In another sense, it does not infringe on any, for the features of these dozen other hives are pretty nearly if not quite all old ideas. With the experimenters we have among the bee-fraternity, it has got to be a very hard matter, in fact, for any one to say truthfully exactly what is his invention and what is not. Scarcely a thing comes up but what has been experimented on before; most of the time the same thing has been spoken of and illustrated in some way by the various bee-journals. The Dovetailed hive can scarcely be called an *invention* in any sense, for it is only a combination of features already well known, and that have been a long time in practical use. Perhaps its greatest merit is that it is cheap, strong, and compact. It is easy to crate for shipment, and easy to put together when at its destination.

BITTER HONEY.

IS THE BITTER-WEED A BENEFIT TO BEE-KEEPERS IN THE REGIONS WHERE IT GROWS?

WE are interested in this section about bitter honey. Pretty much all over this belt of the South, I think, we have a weed that has taken possession of all uncultivated and uncultivated land, growing as thick as oats or wheat, and lasting from May till frost. This weed, when eaten by cows, gives milk so bitter a taste that it can not be used. Some years honey is made from this weed, which, though of good consistency, and of light color, is as bitter as a syrup tintured with quinine. There is no question as to bees working on it. They often get a large winter supply from it, and "swarm" from this fall prosperity. Two years ago I had general swarming in the fall, and the whole apiary went into winter quarters solid, late swarms and all, with fully 50 lbs. to the hive, the most of it from this weed. It appears above ground about May 1st to 15th, and blooms about August 1st. It thrives during droughts, and blooms continuously till frost. Some years the bees do not work on it much, and I have thought they used it only when nothing better was at hand. Friend Jenkins, of Wetumpka, thinks it a blessing, as it furnishes winter stores, and, coming late, does not interfere with other honey. I differ with him in this, as we sometimes have good yields from goldenrod. Prof. Cook thinks no bitter honey comes from flowers but that from bark lice. We, hereabouts, feel sure that this weed produces bitter honey; but as it was comb honey I handled two years ago, having then no extractor, I think it may be possible the pollen on the bees' feet, tramping over the comb, embittered it, and possibly the hon-

ey itself was sweet. Not being familiar with botany, I can give no description. I can send a specimen, however, when it blooms. The flower is yellow.

Bees are killing drones. Our season has been short, on account of drought. No rain in May.

Pontotoc, Miss., May 28, 1889.

C. P. COFFIN.

Quite a number of samples of bitter honey have been sent us—mostly extracted, but we have never had any opportunity of determining with very much certainty just where it came from. I have never before thought that the *pollen* might give the surplus that is *capped* a bitter taste. If such is the case, however, I think that even extracted honey might have a trace of it. I should hardly consider the bitter-weed a benefit, especially as it is always liable to injure the price of the honey.

JAMAICA LETTER.

THE GLOW-WORMS AND FIRE-FLIES OF THE TROPICS.

FRIEND ROOT:—Your letter, saying your books showed \$8.25 to my credit, was received, and is in striking contrast with the methods of some men with whom I have had to do recently. I should think some persons who are accustomed to decry Christianity could see its genuineness from a financial standpoint, if from no other. Many thanks for GLEANINGS. It has been a real source of pleasure to us as well as a storehouse of useful knowledge. Some departments are more interesting than others, yet we read all, even the advertisements. Professor Cook's department is especially interesting to us; and if he were here he would find much to interest him. While I am writing this a green lizard, *Ameiva dorsalis*, about four and a half inches long, is playing about. They are numerous in all parts of the island, and can be seen darting from your path, running on the fence, basking in the sunshine on the trunks of trees, peering from beneath leaves and out of crevices. Indoors they are seen running on the walls, darting across the floor, catching flies on your chair or desk, and playing their antics in the jalousies. When playing they crouch like a tiger, creep on their belly, and raise and lower themselves gradually three or four times, and protrude from the under side of the throat a fan-shaped disk of a crimson or orange color. When frightened or angered they turn a dark buff color. I have noticed the same lizard shed his skin about seven days later—an effect of the anger or nervous shock, I presume. Like the serpent, they suffer from their reputation. This is especially true from ladies who visit the island; and the unreasonableness of prejudice was forcibly illustrated by our neighbor, an English lady, recently. On the approach of one of these harmless, graceful little creatures, she would exclaim, "Oh, the nasty little thing! it has such a long tail!" By and by, one which had the misfortune to lose its caudal appendage came up as if to claim her approbation, when she shrieked, "Oh, the nasty little thing! it has such a short tail!" Another one, whose tail had been cut off, but had grown to half its original length, was frightened until it turned brown by the exclamation, "Oh, the nasty little thing! it has such a queer tail!"

Little Arthur is playing at my side with a glow-fly, which he calls Blinky. I suppose it is so named because its light is intermittent. He says it has two lanterns on its back—two oval luminous spots on the dorsal surface of the thorax. These spots, or tubercles, are visible in daylight. When the insect is quiet, the spots are opaque; but when disturbed they ignite and increase in intensity until the light becomes dazzling. The color of the light is yellow-green. When its body is distended in flight it emits a light of a ruddy color from a membrane on the ventral side of the abdomen, which is thrown like the light from a bullseye lantern, and covers a space three or four feet in diameter. On a dark night the light from one of these flies makes every object in the room visible, and I have frequently determined the time of night, and got a drink for the children by it. The natives who can not afford the luxury of a lamp or candle, frequently light their houses by means of three or four of these glow-flies in a bottle. A few nights ago I met several children in the road, and all had a glow-fly, which they were using as a lantern. There are various species of fire-flies; but most conspicuous among them is *Photuris versicolor*, or "Winkey-walie," as the natives call it. It is frequently seen resting on the wall, when it will gradually increase the intensity of its light until it glows like a torch; then it gradually dies away until it becomes extinct. It will remain for a time, then gradually increase to its former brightness, and die away again. There is a clump of bamboo before the mission house at Providence that nods in the breeze like great ostrich plumes; and during the dark nights in May, myriads of these fireflies take up their abode in it; and the light from their bodies, reflected and refracted from the drop of dew on each leaf makes it a veritable burning bush. J. W. JENKINS.

Providence, Jamaica, April 17, 1889.

We are very much obliged indeed for the wonderful accounts of these insect-friends. No doubt Prof. Cook would be greatly delighted to see these things you mention; and I confess that I never before had the remotest idea that there was an insect anywhere in the world that would throw a circle of light ahead like a dark-lantern. It really seems as if they might be utilized, and bred for the special purpose of imparting light. Are they not cheaper than lights and lanterns? Who knows to what extent this wonderful peculiarity might not be increased by a little encouragement in the way of breeding and selection?

BEE-KEEPING IN CUBA.

FRIEND POPPLETON GIVES US SOME VALUABLE AND INTERESTING FIGURES.

ACCORDING to the promise I made to you nearly a year ago, I will now try to tell the readers of GLEANINGS something about bee-keeping in Cuba; but keep in mind the fact that we have been here a little over one year only, and no single season's experience can be full and complete enough to enable one to judge accurately as to resources, methods, etc.

So far as I can learn, the first movable-comb apiary in Cuba was established five years ago last October on the estate of the brothers Casanova, about 18 miles east of Havana, by A. J. King and A. W.

Osborn, the latter remaining in charge for two years, when he came here, ten miles southwest of Havana, and established this one. Mr. King also established another one a little over a year ago, some 200 miles east of here; but this was not run for honey last winter. So far as I know, these are the only movable-comb apiaries in Cuba; but others are contemplated. The Casanova apiary is fitted with hives and appliances for some 600 colonies, and this one for 500. Mr. P. Casanova has kindly furnished me with such records of his apiary as he has; but I find it impossible to obtain complete information of the workings of that apiary. Nov. 11, 1883, Mr. Osborn reports 92 colonies alive of the 100 shipped from New York. Feb. 19, 1885, he reports 113 colonies on Dec. 1, previously, and a yield of 40,125 lbs. of honey. May 7, he reports having increased during the previous year from 34 to 555 colonies, the 113 of those having survived the summer. I can get no report of the following year, but the report for the honey season of 1886-'87 is, number of one-story colonies, 41; of two-story colonies, 126; of three stories, 113. Total, 280. Honey obtained, 50,000 lbs. Season of 1887-'88, no record of colonies, but obtained 32,500 lbs. of honey. Last fall they had 62 colonies in single stories, and 322 in two and three story hives. Total, 384. Honey obtained, 20,000 lbs.

The following report of the results obtained at this apiary is as nearly correct as I can get them. Apiary started early in 1886, by the purchase of some 40 colonies in Cuban box hives, which were transferred and increased during the year to about 130 colonies, 80 of which were in condition to store honey during the extracting season, which that year closed Feb. 1, not because honey had entirely ceased flowing, but because a large increase of colonies was desired. Crop secured, 30,000 lbs. During the spring and summer of 1887 the apiary was increased to 500 colonies; but many of these died before and during the honey season, so that when I took charge of the apiary, Feb. 15, 1888, I found 411 colonies. The total yield that season was a little over 45,000 lbs.; but some more than 3000 lbs. was fed back during the following summer, leaving the net yield 42,000 lbs. We increased the apiary during last summer to only 436 colonies; but the hurricane which made so disastrous a visitation to Cuba last September blew down nearly half of our beehives, killing in their fall some 30 colonies, so we commenced the season with 400 colonies, about 325 of them strong enough to store honey in upper stories. We have taken out 50,000 lbs. of honey; but out of that will have to come the amount required for feeding back during the coming summer—an unknown quantity. Since March 1, I have increased the apiary to its full capacity of 498 colonies. So much for the actual statistics of what has been done.

Bee-keeping in Cuba is very different from bee-keeping in the States, on account of the honey-flow coming in winter instead of in the summer. I will try to give some idea of the honey-flow during each month of the year, commencing with June. These figures, or estimates, relate to a 400-colony apiary, which would, of course, be changed for a larger or smaller one. June showed an average loss of about 2 lbs. of honey per colony, this being the first month of the year when the bees gathered less than they used. The loss in July, also in August, was about the same as for June, with a still greater average loss during the first half of September. We

were obliged to feed two-thirds of the colonies during all this time, the other third gathering enough for their own use, and some 20 of the best ones giving not to exceed 5 lbs. each of surplus honey to other weak ones. About the middle of September, honey commenced to come in slowly, increasing in quantity during all of October, and until the middle of November, when it slacked off some until the 1st of December. I estimated the average increase of stores during October at 5 lbs. per colony, and during November at 15 lbs. We started the extractor Nov. 1, taking out nearly 6000 lbs. during that month. The first appreciable amount of bell-flower honey came in Nov. 28, the main flow from which lasted through December and January. We had an average hive on scales, and the following table gives the daily yields during the principal honey months.

In this table the daily gain is given in ordinary figures; the daily loss, in black; when there was no gain, nor loss, in ciphers; and days when we extracted from that colony are marked with an X. At the commencement of the honey harvest I selected three of the strongest and best-working colonies in the apiary, and carefully weighed all the honey taken from them. The total yields were respectively 313½, 309½, and 280 lbs. each, during the four months from Nov. 1 to March 1. These were very strong colonies, occupied fully three stories, and, in fact, I do not think there were any other three colonies in the apiary that stored an equal amount of honey. From the 1st of February the yield of honey gradually slackened until the 1st of June, my estimate of the average gain of stores per colony being 8 lbs. during March; 3 in April, and 1 in May.

O. O. POPPLETON.

Havana, Cuba, June 1, 1889.

[Concluded in next issue.]

SHIPPING-PACKAGES FOR COMB HONEY.

A PROMINENT COMMISSION FIRM FURNISH SOME SUGGESTIONS.

REPORTS of the U. S. Honey Producers' Exchange as to condition of bees, and prospects of this year's honey crop, are very favorable and promising. The number of apiarists is continually increasing. It is expected that many carloads of fancy white-sage comb honey, put up in modern eastern style, will be shipped from California to our markets. In view of this increasing supplies, the important question becomes more pertinent: How shall we create more demand for honey? Our reply is:

1. Increase its intrinsic value for the consumer.
2. Reduce the risk of loss by breakage.
3. Make packages as attractive and handy as possible, of light-weighting material, at the least possible cost to the consumer.

When the consumer buys a pound of butter at 20 cts. he receives 16 ounces net. When he means to buy a pound of honey at 20 cts. he receives, in many cases, only about 10 ounces of honey, the in-

trinsic value of which, at the above rate, is only 12½ cts., and 6 ounces of wood and glass or pasteboard, which is worth nothing to him. Nevertheless he has to pay 7½ cts. for this nothing, and yet we expect more demand of that consumer. The lady who does not realize this fact may, unless she is one of the upper ten, at least get the impression that honey is quite an expensive luxury. Of course, the apiarist has paid for glass and wood and paper box, and spent so much labor and time to put up his honey nicely, and for this he expects to be remunerated, and possibly to make a little extra by the weight of the packing material. But what does the consumer care for all that, who simply wants his money's worth of honey? As all producers depend on the consumer at the end, our aim must be to satisfy the wants of the consumer. We propose, therefore, to use a light-weighting, attractive, and handy paper carton at the smallest possible cost.

As we have had the best opportunity to see and compare hundreds of different styles of honey-packages, we have selected the very best, and made some improvements, so that we may safely say that honey put up in this style will sell, first of all, at best prices, and give satisfaction. It is true, that glassed honey looks quite tempting, and that goods must be shown; but what we have said above is not only true, but it is also a statement of the true value. In order to show the honey, put one glassed comb in on each side of the crate, and the other combs in paper cartons. This refers to 1-lb. sections of fancy (No. 1), and fair (No. 2) white, and 1-lb. No. 1 buckwheat comb honey only; of 2-lb. sections and No. 1 buckwheat fancy white, two-thirds should be glassed (the glass weighing less in proportion), and one-third not glassed; 2-lb. sections of fair white, of mixed, and of No. 2 buckwheat and of 1 lb. sections of mixed and unfilled, should be without glass and paper, in order to reduce the cost, and know what the goods really are.

WHAT SHALL WE DO TO PROTECT OUR HONEY AGAINST BREAKAGE?

If eggs were not packed so nicely in patent paper boxes, or in chopped straw, most of the dealers would decline to handle those delicate structures. Is comb honey less delicately constructed? No, it is not; and for this reason some additional arrangements ought to be made in packing to prevent loss, and to avoid trouble, and to make the handling less sticky. Before comb honey reaches the consumer it passes through the hands of many persons who do not understand at all how to handle so fragile an article, and knock crates about, as if they were bricks. Besides, comb honey is generally shaken up so badly, when carted on the pavements of the streets in cities, that some of it is bound to break and to leak out.

One of our best customers, for whom a nice lot of honey had been smashed up entirely, said he would never touch comb honey again if he could help it, because of the annoyance and loss connected with that sticky article. We know of many similar cases where dealers became disgusted, and would not handle comb honey at all, because of the risk connected with the business. Remedy this by using Strohmeyer's comb-protector, which will prevent breakage; and if there should be one leaking comb in a crate, our comb-protector will prevent the soiling of the other combs. Our comb-protector requires ¾ inch more in height of crates. By using our attractive new style of paper carton

and comb-protector you will save labor, time, and expenses, and thereby be enabled to market your honey early in the season, when the best prices can be obtained. You will reduce the cost, decrease loss by breakage, but increase the demand, and consequently obtain larger profits.

F. G. STROHMEYER & CO.

New York, May 22, 1889.

All right, friends Strohmeier & Co. Send us samples of your new improvement, just as soon as you can, and give us some pictures to give to our readers. You are exactly on the very track where we wanted to see you; and we can stand considerable free advertising, if you will just give us something practical, to prevent daubing and breakage.

MOVING BEES.

CAPITAL SUGGESTION FROM S. I. FREEBORN, OF
BASSWOOD FAME.

I READ with interest every thing touching on this point. I have often wondered if other folks had the trouble that I did, and were alive to the risks incurred in moving bees. It seems, Mr. Editor, that others besides myself have found that bees and horses do not always harmonize. I can join with C. C. Miller in the sigh of relief in the fall when through moving bees; but for myself, I don't dread spring and fall moving as much as summer moving, when stocks are more populous, and weather warmer.

THE KIND OF VEHICLE BEST ADAPTED FOR MOVING BEES.

I have had occasion at times to move bees during every month in the year. I have moved by almost every kind of vehicle—wagons, sleds, buggies, spring wagons, and those without springs. I thought at one time that we should use springs, or put something soft under them, as straw or hay; but of late years I have put nothing softer than the wagon-box under them. I have tried several kinds of racks, but have voted them unhandy and cumbersome. I have simmered down to two wagon-boxes 11½ feet long, made double—boxes like those on farmers' wagons for hauling corn and other produce. We find these handy for hauling bees, apple-trees, and many other kinds of luggage. They will hold 12 double Langstroth or Gallup hives, or 24 single ones. We have 100 screens of the size of the top of the hives that we nail on after fastening frames and bottom-boards. We pack well with hay or straw around the hives, to keep them from rocking. In this way we have moved hundreds of colonies, and many times over as rough roads as there are in this county, and that is rough enough.

DISASTERS IN MOVING BEES; HOW TO AVOID.

Previous to last season, we had killed but very few colonies—probably four or five in 30 years. Last season we met our Waterloo, killing 16 colonies in one trip. Several causes served as helps to this disaster: The distance was considerable (24 miles), there was too much honey; the weather was very hot, and the colonies were extra strong. In our first trip of this move, we left in the full number of frames; in the next loads we took out five or six frames from each upper story, making them cooler, and furnishing an empty space to cluster in. The last moved had the advantage of being 6 miles nearer destination than those moved first, with the

additional precaution of less frames. We moved the last lot with success.

As an offset to the loss of last season, I will give a short account of moving 72 colonies in the summer of 1879, which was my first experience in moving to the mint (last of July, 10 miles distance). I wished to move the strongest colonies, many bees lying out. The question was, how to move such populous stocks and make it safe for them and the horses. We solved the problem by nailing some wire screens over empty hives, and fastening one on top of each colony moved, making them three stories high, with nothing but bees and air in upper stories. The experiment was a success, as we broke only one comb out of the 72 colonies in moving down, and did not get a horse stung at all; but we used every precaution to guard against the bees getting out.

SHIPPING BEES BY RAIL.

In regard to this matter I will say I am not authority, having done but little of it, and that only a short distance. I have lately been in correspondence with a gentleman who has been in the habit of shipping his bees from Missouri to Mississippi, to winter, taking in the early honey season there, and then returning in time for white clover in Missouri. He reported the venture as a success, but informed me that he had great difficulty in keeping his bees cool in returning. As they were then numerous, and the weather warm, he was obliged to use ice to keep them quiet enough to stand the trip. I have also been in correspondence with a man from Michigan in regard to

MOVING BEES FROM THE SOUTH TO THE NORTH, to take in the different honey seasons. His plan, as he wrote me in early spring, was to buy bees in Arkansas, take in the poplar and basswood harvest, then move north till he struck white clover in its prime; after clover, pack for Wisconsin and gather in clover, basswood, mint, and whatever else he could. I referred him to C. O. Perrine's venture on the Mississippi, and others, cautioning him of the loss of brood in long transits, and the difficulties of having bees in condition to gather an immediate harvest after a long trip. He has, I believe, modified his plans so as to take the early harvest in Arkansas, and be satisfied with what he can get in Wisconsin without stopping midway.

GETTING HORSES STUNG; AN GENIOUS PLAN TO LOOSEN THEM FROM THE WAGON INSTANTLY, IN CASE OF EMERGENCY.

In regard to the danger of getting horses stung while moving bees, and the dire consequences that might follow, I can heartily join with Bro. Root in saying that C. C. Miller's caution is timely. Yes, I should say be careful. If a man needs to be cautioned when about to catch a mule by the hind leg, or a rattlesnake by the tail, then it will be in order to caution him about mixing bees and horses. There is one part of Miller's tactics that I think I will leave for you and him to practice—that is rubbing the horses' heads and noses when the bees are after them. I prefer to be at the other end, with a good hold of the lines. In the first place, I would emphasize the caution—*when moving bees, don't leave the hives so they will leak bees; but if, by some mishap, they do get out, get bees and horses apart as soon as possible.* To do this with all dispatch, we have our whiffletree-pins greased so they will pull out easily. We also have a piece of rope tied around the upper end, extending up to within easy reach of the driver; so in case of any stinging, the

horses can be detached in double-quick time from the load till things are righted. S. I. FREEBORN.
Ithaca, Wis., June, 1889.

You have hit it exactly. Have the pin that holds the doubletrees, made with a loop or eye in the top, and then hitch a stout rope to it that will not break, or, better still, a chain, and let the driver sit on the front end of the wagon, with the bolt between his feet. If the bolt is greased, as you suggest, and does not stick, he can jerk it out, even if the team were drawing on the doubletrees. With one horse, the whiffletree to the wagon would have to be arranged the same way; then fix the hold-backs so they will easily slip off from the thills, and the driver can skip, leaving the wagon behind at any moment, on short notice.

HONEY STATISTICS, ETC.

FROM ONE OF THE FRIENDS IN THE SOUTH.

FRIEND ROOT:—GLEANINGS, June 1st, is at hand, and you are to be congratulated on its beauty, valuable contents, and general completeness. The new feature, "Honey Statistics," is a most important one. I was surprised, however, to note the large percentage of "bees wintered," in the Southern reports, as experience in this section coincides with that reported from Louisiana, where a large per cent starved. Box hives, of course, and those governed by "kings," are the chief sufferers. The winter was so mild that bees were flying a large part of the time, and stores were consumed to an extent unusual. Leaving my apiary well supplied, and the hives equalized as to sealed stores, I was absent all winter. Returning I found one colony out of 26 starved—a very strong but *energetic* colony. Its energy was doubtless its ruin. Though this colony need not have been lost, and my "showing," as it was, a very fair one, still, a cold winter would have started things off in spring in far better trim for the honey season, while many box-hive men lost all, and many more from 50 to 95 per cent.

I use Simplicity single-story hives on summer stands for wintering, with some natural shelter (cedars) on the north. In this connection I will add, I use old pieces of ingrain carpet on top of the enamel cloth, on some hives, and on crates, when first placed; and I am satisfied in both cases it is beneficial, and I know a large piece of the same material thrown over the outside will cause bees to go into sections in cool weather when they will not otherwise.

I have obtained real clover honey this spring, to a very considerable extent—something unusual here. It was from white, alsike, and red, the Italians going $3\frac{1}{2}$ miles for the latter. Sweet clover is just coming in and promises great things, being 7 feet high, and the few blooms open are covered with bees.

MORE ABOUT THE BUTCHER BIRD.

The butcher bird Prof. Cook tells of is a familiar acquaintance of mine, and I have often seen him doing what the genial professor describes. A favorite tree is the honey-locust, on whose thorns this little butcher impales his prey. In my daily walk to the village I always see one near a thorn-bush that had been cut down and thrown into a gully. Only a few days ago I stopped a little friend

to show her a large grasshopper that I had just seen this bird transfix on one of the sharp thorns. When in Florida some years ago, one of these species used one of my young orange-trees to such an extent that it seemed to bear, as fruit, scorpions, lizards, small birds, grasshoppers, and the like, all at "one crop," so to speak. Wilson, Nuttall, Audubon—all, I think, speak of this trait in the great shriker.

LOSING CARP EGGS.

I can sympathize with you in the matter of losing carp eggs by the thieves, such as minnows, frogs, snakes, and turtles, and, I almost forgot, crawfish; and I am satisfied that, for those of us who are not expert pisciculturists, and who can not afford to drain often and have special breeding-ponds, carp culture will prove a failure unless some cheap, easy plan is adopted, by means of which the eggs and very young fry can be artificially protected till the young fish are large enough to care for themselves. Here is a plan I think cheap and practicable: Make a wire-cloth cage, as large as you wish (tacking the cloth on a wooden frame), having a door that will shut tight, on top. When the fish spawn, collect all the grass or other debris on which the eggs have caught, and place it in this minnow and frog proof cage, which should be put in shallow water. I take it for granted you know how to tell when carp spawn. It can be told by the commotion they make in the water the first warm weather. I always know, and see them. The above will succeed, for I have used a barrel this year, and hatched them successfully. Plenty of drift grass or straw should always be supplied for this purpose beforehand. My ponds are also flower-gardens, and it might interest you and some of your readers to know how easily such a spot may be beautified. I will only say, that if you should come this way some time I could place you on a diminutive island surrounded by flowers, let you thrust your fishing-rod through a "virgin's bower," drop your hook among the lily-pads, and land your tenth carp in a bed of pansies, if, in your excitement, your fish did not catch in a Marechal Niel rose, fifteen feet overhead.

C. P. COFFIN.

Pontotoc, Miss., June 7, 1889.

I am very much obliged indeed, for the additional facts you give us in regard to the butcher-bird; also your suggestions on raising young carp. I do know that all you say might be done; but just now I am watching and waiting for some boy who loves fish, just as you and I used to love to study about bees. When this boy makes his appearance, I am going to give him charge of my carp-pond, and he and I together, I am pretty sure, can raise carp as easily as our boys in the garden raise celery-plants. May be we could sell little ones at the same price, if we could only send them by mail. Your flower-garden in the middle of your carp-pond almost induces me to promise to pay you a visit. I have had dreams of such an island, but I didn't know that anybody had worked it out. My strawberry-bed alongside of Champion Brook terminates on the bank of the carp-pond, and I have long thought of having some flowers on the banks of the pond where the weeds grow so rampant; but I tell you, friend C., it not only takes money but brains to keep any thing of this kind nice. Perhaps your

island, covered with flowers, is just now a "thing of beauty;" but are you sure it will continue to be a "joy for ever"? If you keep it up, see if I don't come and see you one of these days; and, by the way, when you had those wee little carp in your barrel, didn't some sort of enemies, by some hook or crook, sooner or later get into the barrel also?

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

A REPLY FROM THE PUBLISHERS OF THE BRITANNICA.

MR. A. I. ROOT:—Your favor of the 7th inst., in relation to the article on "Glucose," in the American Supplement to the *Encyclopædia Britannica*, is received. We started an investigation immediately, and find that our author, Mr. Morris, has not, in our opinion, as good grounds for his assertions as he should have had. It is a matter of regret to us that Mr. Morris did not probe the matter deeper, and follow the rumors until he found either the truth or an error. It is also a matter of regret that you allowed this article to stand so long as it has, without calling attention to it sooner. This article was published some three years ago, and our attention was first called to it by Dr. Nysewander, of Des Moines, Iowa, under date of May 13th, closely followed by yours of the 7th of June. To us it is inexplicable how an article of this sort, which you seemed to be hunting in such sincerity, has been allowed to run so long without your discovering it.

We thank you for calling our attention to the matter now, and we shall have further investigation made, and correct the plates of our book, to correspond with the truth of the matter.

HUBBARD BROS.

Philadelphia, Pa., June 14, 1889.

Very good, friends. I do not know that we have ever before had so frank and fair an acknowledgment from the publishers of any book or newspaper in regard to this whole matter; and even though you have turned around on us a little, we do not feel hurt. In fact, we own up. Brother bee-keepers, it is a burning shame that not one among us had enterprise enough to notice such a statement until it had been three years in print. We shall have to give Dr. Nysewander the credit for having been the first one to see the false statement. Yes, we have been hunting with great "sincerity," but it seems that we did not alight on your publication before. There is one thing, however, that we should like to urge, if you will excuse us. You say you will correct the plates. Now, just have a printed slip of errata, or something of that kind, put into each book already published, and, as far as possible, sent to all who have purchased the work, and we shall be quite satisfied, and grateful to you besides. You speak about further investigation. We should be very glad indeed to furnish you the results of the investigations we have

made for the past four or five years. And now, brother bee-keepers, let us each and every one make it a point to consult the cyclopedias and all other works of that character, to see that the statements made are truthful, and that they do justice, both to the honey-bees and to the bee-keepers of the world.

"THOU SHALT NOT BEAR FALSE WITNESS AGAINST THY NEIGHBOR."

But, oh dear me! we have not got through the business yet, by any means. See the following:

Mr. Root:—Give the enterprising editor a "boost." Santa Monica, Cal., June 10, 1889. C. S. LEWIS.

Below is the newspaper clipping that came with the above.

THERE appears to be no limit to the adulteration and fraudulent substitution practiced with articles of food and drink. One might suppose that honey in the comb, at least, would be safe from humbug; but even this has been successfully imitated of late. Artificial comb is made of paraffine wax, and filled with glucose; and after the cell have been sealed with paraffine, the resemblance to the genuine article is perfect. This is an "advance" upon the older fraud of feeding bees with glucose, which the industrious insects proceeded to laboriously transfer to the comb.—*Marysville Appeal*.

Thank you, friend L., for sending us the clipping. Now, dear brothers of the *Marysville Appeal*, it is not the adulteration business that is so unlimited, bad as it is; but it is this matter of bearing false witness against your neighbor which is unlimited. We have mailed you one of our reward cards, and we hope you will be kind enough and fair enough to publish to your readers a retraction. We ask friend Lewis, and every other good bee-man, to see that it is done.

And now we find in the *Philadelphia Record* the following heading to a sensational article:

BEEES CAN TAKE A REST.

THEY ARE NO LONGER NEEDED AS HONEY-MAKERS.

COMMERCIAL CUNNING MAKES THE COMB OF PARAFFINE AND THE HONEY OF GLUCOSE, AND THE PUBLIC CAN'T DETECT IT.

Below the above is one of the usual sensational strings of truth and untruth. Now, dear friends of the *Record*, we want to tell you that you are bearing false witness against your neighbor—an honest, industrious, and hard-working neighbor—a neighbor who has never harmed nor wronged you, but who has, in fact, been too busy earning his bread by the sweat of his face to think of damaging or injuring his fellow-man in the way in which you have injured and damaged him by your thoughtless editorial. The *Philadelphia Record* has for years been on our exchange list, and is almost daily on our table, and this makes us feel a little sadder than to see such statements in other papers which have not had the plain facts set before them every two weeks, year after year, as we have done for the *Record* folks. Now, dear friends will you not just take a little space to correct this wrong (although you never can do so fully), and do justice to an honest and industrious class of people?

And here is another piece of news (?) clipped from the *Sun*, of New York, printed

Sunday, June 9. Our stenographer suggests that, if they *must* tell lies, they do it on some other day than Sunday. Read:

The worst enemy of the honey-raiser is the producer of artificial and adulterated honey. It is easy to adulterate honey, but only recently have men become ingenious and skillful enough to make honey in the comb, both the honey and the comb being artificially produced. The spurious product looks almost exactly like that created by bees, and it is put up in the little square boxes, with windowed sides, like those used in hives. It is possible to detect the imitation, only by tasting it, by which test anybody who has a tooth for genuine honey can easily detect the fraud. The counterfeit is so skillfully executed, however, that it frequently deceives a novice. A New York man in a restaurant in this city the other night called for honey in the comb, and five boxes were purchased for him at as many different groceries before one of genuine honey was obtained. He then described the method of artificial honey-making, and in conclusion said that he was a drummer for a New York honey house.

Will the *Sun* people be kind enough to contradict the false statement they have probably unconsciously made in regard to their neighbors? We also send them one of our reward cards.

THE SAME OLD FALSEHOOD IN OTHER SHEEP'S CLOTHING.

The inclosed clipping was taken from the *Evening News*, Chicago, of May 29, 1889. ED HILE.
Muskegon, Mich., June 3, 1889.

MANUFACTURED HONEY; HOW ONE OF NATURE'S PRODUCTS IS SUCCESSFULLY COUNTERFEITED.

It is very likely the desire to be too quickly rich that makes the grocer sand his sugar, and the apothecary trifle with his life-saving drugs, and the weaver put cotton with his wool and starch with his cotton; but it hardly makes much difference to the consumer, those that suffer in consequence, what is the occasion of the act; it is enough for him, and considerably more than enough, that it is done. Yet when he finds the sediment of sand at the bottom of his coffee-cup he is glad it is there rather than down his throat; and he knows that if the apothecary has made the curative medicine too weak he has also diminished the power of the poisonous; and in general, fancying himself beyond the possibility of reaching or remedying the evil, he goes on submitting to it, thanks goodness it is no worse, that the air of heaven is licensed to no shop-keeper, and one has not yet succeeded in patenting the essential element of fire, so that he may breathe and keep warm without fear of adulteration. Two or three things besides, he has flattered himself, were beyond the coveting hand of greed; among them the egg, for instance, and the bee with that geometrical work of his which has for ages been doing all sorts of things with the brains of philosophers. Lately he has heard some dreadful suspicions as to the possibility of counterfeiting of the egg, but he dismissed them as absurdities. But when he heard that the honey-men bought glucose and set down a mass of it before their bee-hives, the bees at once accepted the benediction, glad at heart to find their food close at hand, without the trouble of blundering about gardens and into blossoms, and no long flights to take on weary wings; he felt that at any rate it passed through the mechanism of the bee and got the tang and taste of honey, if it were not the expressed flower essence at first hand. But recently, says Harper's *Bazar*, he has received a shock in which the walls of his last stronghold have crumbled. There are now adulterators, if you will call them so, counterfeiters, what you will, who prepare artificial combs from paraffine as geometrical in shape, as waxy in appearance, and who fill these combs with clear syrup and seal them, so that apparently not even the bee could tell the difference between the false and the true. He sees with horror that the article sacred to sunshine and summer and poetry, to the Bible land flowing with milk and honey, to Sordello's song of Elys, is vanishing from the market and the table; and unless a man keeps his

own bees he may doubt if he is eating any thing but strained-glucose syrup at the time when he would like to be indulging in all sorts of fine and flowery fancies concerning his honey in the honey-comb.

And so it seems that even Harper's *Bazar* has gone into the enemy's ranks, and taking to bearing false witness against their neighbor. If any of our readers can tell us what issue of the *Bazar* contained the matter referred to in the above, we shall esteem it a favor.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

ORANGE-BLOSSOM HONEY NOT A MYTH; O. O. POPPLETON'S STATEMENT CHALLENGED.

I DID not know until recently, that there was any question as to orange-blossoms yielding honey. I have been in Florida five years, and have taken more or less surplus honey from that source every year; and if my bees had not been so weakened by moving from Wisconsin I could have taken it by the ton the first year; for a blossom, when shaken over the hand, would deposit a good-sized drop; and my bees, although mere nuclei, and too few in numbers to work in upper stories, filled their brood-combs to the exclusion of brood. I have this season taken 1000 pounds in one-pound sections, and 200 in broken honey. Most of the former I sent to Hildreth Bros., of New York, who sold it at 14½ and 15 cents per pound—not a fancy price, to be sure, but as high as white clover in the same market, to which it is in no way inferior; for its flavor (although different, of course) is as good and wears as well, while it is fully as white in color. I had 35 stocks in the apiary, and have 63 now. A friend of mine in a town near by reports having taken 100 pounds in sections from a swarm that issued in March.

After five and a half years continuous residence in Florida my family and self will this summer revisit the scenes of our childhood in Southern Wisconsin, where we hope to spend two months with old friends and neighbors. J. L. WOLFENDEN.

Evanston, Fla., June 10, 1889.

THE VALUE OF SALT, SOOT, LIME, ETC., ON LAND.

We had a pasture once, and nothing would eat the grass. We sowed about 600 lbs. of salt per acre on it. In a short time, both sheep and cows took it and ate it bare, after which a good grass came up. Salt is a good fertilizer on light land that is apt to burn up; so is lime or both mixed. Lime is a good fertilizer on land that grows much wheat or white straw of any kind, especially if it is deficient in the soil; 25 to 30 tons per acre has a marked and permanent effect. Soot is a valuable manure. There is a great deal used in England. The chimney-sweeps save all they get, and sell it to the farmers. Once I was going to put soot on a field that I thought needed lime, and I had both mixed in a room in the barn. The ammonia set free was too strong to make it pleasant staying in the room. After that I never mixed them, for ammonia is very volatile, and I concluded all that was set free was lost. When I first noticed the effect of soot as a manure, I asked the knowing ones where its manurial value lay, and I was told that it had no

actual value as a manure, but acted somehow in a "mechanical way." My experiment with the lime satisfied me. Lime should never be mixed with manure. It may cause a quick start, but the ammonia is wasted.

GEO. E. HALL.

Lytle, Tex.

Friend H., I have often seen soot recommended, and even liquid manure, made by stirring a small quantity of soot in a barrel of water; but I have always been much inclined to think that it was only a notion. In fact, I do not know that I ever tried soot at all. Now, when you tell me that soot mixed with lime gives off ammonia in the same way as does guano when mixed with lime, then I can understand it readily. But where does the ammonia come from? I supposed that soot is principally carbon, and that it is just about as good as so much charcoal dust and no more. Charcoal dust is valuable only as an absorbent; at the same time it makes the soil black so as to attract the rays of the sun. As soon as I can get hold of some soot I will test it in the way you mention.

MOISTURE IN HIVES; WHENCE DOES IT COME?

I received the oil-cloth covers per express to-day. Will you kindly explain to me why so much moisture is in my hives? I have 60 colonies of bees in various styles of hives, the majority being Simplicity, Langstroth, and American, and all of them have oil-cloth covers over the section boxes. We have had a very wet season for the past five or six weeks, and the section boxes in some of the hives have been perfectly soaked with moisture, while in others they are dry. Why the difference? Upon raising the oil-cloth at almost any time, it is found covered with great drops of water, apparently perspiration. This cannot be from the evaporation of the nectar, for none or little has been brought in. The section boxes are so swollen in some of the Simplicity and Langstroth hives that they burst (partly) apart the T super, and I am obliged to open the hive after every shower to let out moisture. Have you had other complaints like this, regarding the use of the oil-cloth?

D. F. OGDEN.

Boulder, Col., June 11, 1889.

If it were in our locality I should say it was all owing to the exceedingly damp weather; but, if I am correct, you never have damp weather in June in Colorado. The oil-cloth, without question, has something to do with it. We have never noticed any such trouble as you mention, in the summer time, in our locality.

A NUT FOR PROFESSOR COOK TO CRACK; AN ACTUAL EYE-WITNESS TO A BEE BITING THROUGH THE TUBE OF THE WILD TOUCH-ME-NOT.

In GLEANINGS for June 1st, 1889, page 440, Prof. Cook says, "I do not say that honey-bees never cut into flower-tubes, but I feel very positive that this is the case." If my memory serves me right, it was J. L. Davis, of Holt, Ingham Co., Mich., who told me that bees would bite into the flower of what is here called the wild touch-me-not. Wishing to see it done, I went to a patch of said flowers, which was only about six rods from my house and a few feet from my bee-yard. Bees were quite plentiful on the flowers. My eye caught an Italian bee; he put his head into the open flower for an instant,

then he went to the bow end of the flower, which I saw had been bitten into by something. He took only a snuff at the hole, and darted to another flower, which was just right for me to see the whole operation in the flower. He went into the open end, backed out, and went to the bow end, and plied his jaws with a vim. With three or four bites he made a hole, and thrust his bill into it for about three seconds, and I followed him to two other flowers which were worked upon about the same by the bees. He visited several other flowers before he reached the last two flowers that he bit into; then I lost sight of him. This was some years ago. I have watched many times since to see them bite the same kind of flowers, but failed every time. There is no mistake in the above. J. L. LEWIS.

West Windsor, Eaton Co., Mich.

Well, I declare, friend L., I am now more than ever convinced that I was right, for I thought I saw the same thing you mention. I guess we won't change the A B C book yet, after all—certainly not until we hear from Prof. Cook in regard to the matter.

ALSIKE CLOVER, AND ONE OF ITS PECULIARITIES. THE VALUE OF THE STATISTICAL REPORT.

I notice in GLEANINGS that friend Gough thinks alsike is a cross between white and red clover. My experience with it has been, that, if it is pastured, or the soil becomes hard or dry from any other cause, it is very liable to look like white clover. I have a piece that has been sown for several years; although it has not been pastured, the ground is hard; and when it bloomed out first this season I think any one would have called it white clover; but since the excessive rains it has grown rank, and has a pink blossom.

I think the statistical report in GLEANINGS is worth the price charged. I have enjoyed reading your travels; and, in fact, GLEANINGS is good from beginning to end, and no bee-keeper should be without it. Bees are doing well here now, and the prospect is good for a good crop of honey, although there were some new swarms that starved the latter part of May.

J. T. VANPETTEN.

Linn, Kan., June 12, 1889.

SUNDAY SWARMING.

I had a rather singular experience with a swarm last Sunday (favorite day with my bees). They settled on a large limb in the top of a locust-tree, about 30 feet from the ground. It was too large to saw off. I succeeded in hiving them by using frames filled with comb. Pressing a comb against the swarm, I would wait until it was covered with bees, and then bring it down. Seven or eight trips sufficed to bring down all but a few. I brushed them off with a feather duster, and they followed down the ladder like a drove of pigs.

Crescent Hill, Ky., May 30, 1889. J. T. GAINES.

STRAWBOARD FOR T-SUPER COVERS, ETC.

In your foot-note to L. A. Duggan's letter, May 15, you say, "Very likely thick paper or strawboard would answer nicely for the inside of chaff hives." I have been trying strawboard T-super covers this spring, $\frac{1}{4}$ inch thick, painted two coats. A few hours of rain will water-soak them so they will come to pieces; and I think even for the inside of a hive the moisture from the bees would soon ren-

der it worthless. Would not some kind of cement, molded in the form of a board, make good T-super covers, or plaster of Paris, if covered in cold weather? My board covers, with a shade-board over them, have to be loaded with stone to prevent twisting and curling up endwise.

Vienna, N. Y., May 25, 1889. V. W. TREMAIN.

The account of your experiment is valuable, inasmuch as it may save others, who had strawboard in mind, both time and money.

SUGAR SYRUP NEVER HONEY.

I will ask a question, and should like to see it answered in GLEANINGS by the veterans. One year ago last fall a friend fed two swarms with white sugar, after bee-pasture was killed, and the bees filled a great many sections of the whitest and most beautiful honey to look at I ever saw. He asked me to taste it. I did so, and I certainly would have taken it for honey; at least, there was quite a flavor of honey mixed with it. From what source came that flavor of honey? Can the most skillful chemist take the clover blossom and extract from it honey that will have the flavor bees give it? Bees will take the most bitter and ugly flowers, and extract from them a fair article of honey. You probably will say you can detect a flavor of the blossom; but how do the bees give it the flavor of honey?

La Otto, Ind., May 30, 1889.

E. S. HANSON.

Friend H., you are making a mistake. Bees might sometimes make a fair article of honey from bitter flowers; but, as a rule, the honey is but slightly changed by being carried into the hive, except in the ripening process; and sugar syrup does not make honey. You made some mistake, or your people were careless in tasting. It has been tried by bee-keepers hundreds of times; and any one accustomed to the taste of sugar and honey will detect the sugar syrup at once. Even if it could not be noticed, it would not be profitable to feed the bees with it to get them to store it for honey.

PAPIER-MACHE FOR COMBS; LEMONADE SWEETENED WITH HONEY, GOOD.

Why couldn't the combs be made of papier-mache instead of wood? They could not absorb any more wax, and it certainly would not take any more wax per hive than foundation does. Did you ever sweeten lemonade with honey? We think it is nicer than sugar. Several who can not eat honey have drank the lemonade at our house, and felt no trouble from the honey sweetening.

Los Alamos, Cal.

MRS. J. HILTON.

The objections to papier-mache instead of wood for honey-combs, is that the bees will every now and then, especially during a dearth of honey, go to work and tear the paper all to pieces; in fact, I have never seen any paper they would not tear up sooner or later in this way. They seem to imagine that any thing like paper has something to do with the bee-moth, and so they clean it out.

DISINFECTING CHAFF HIVES OF FOUL-BROOD GERMS.

I made my first chaff hive when 12 years old; but that horrible scourge, foul brood, got into our apiary. I say *ours*, for my brothers had bees as well as myself; and before we knew what was wrong, they

were in the last stages of foul brood, and nearly all died. We melted the combs, but the hives are all chaff hives, and it seems too bad to burn them. Now, will the hives need to be pulled to pieces and scalded inside and out, or will it do to scald the inside? Would not boiling water do as well as steam? Is there any danger in leaving the empty hives standing close to the apiary before they are scalded?

OSCAR TRUSSLER.

Strasburg, Ont., April 30, 1889.

It will not do to leave those infected chaff hives near the apiary for any great length of time. We suppose, of course, the entrances have been closed in the mean time. It is a very difficult matter to disinfect chaff hives. If you can get a kettle large enough, and can make sure that the water is brought to the boiling-point, you can disinfect the hive by removing the bottom and taking out the chaff, after which immerse them for about a full minute in the boiling water. I would keep them in the water as long as this, or longer, if you can conveniently, because the water is liable not to reach all the inside portions of the hive. We send you the latest edition of the A B C book. We advise you to read carefully the instructions on this point. We would say, in regard to chaff hives, that we have had very poor success in disinfecting them. We disinfected our last lot of hives by knocking them to pieces and burning them up, for we can make new ones about as cheaply as we can fuss with old ones, and then not have something as good, in the bargain.

CHILLED AND FOUL BROOD.

1. Is it a common occurrence in spring for a few scattered dead larvæ to be found here and there through a number of hives in the apiary, death being caused presumably either by neglect of the nurses or some disease, the larvæ flattening out and seeming watery and grayish? 2. If so, is it usual that, on arrival of the honey season, this condition ceases to exist, or will it, in a poor season, or with a weak colony, still continue, and probably develop into disease involving the ultimate destruction of the colony, with danger of infection to others?

R. W. McDONNELL.

Galt, Ont., Can., June 4, 1889.

1. The dead larvæ you describe are evidently chilled brood. The heads of the grubs first turn black, the larva shrinks, and finally settles into a pulpy gray or a grayish-yellow mass. If it turned to a coffee brown, and the matured matter were ropy—that is, tenacious, like spittle, it would have all the appearance of foul brood. While chilled brood resembles foul brood, it lacks the important symptoms; viz., ropiness and color. 2. Chilled brood can never develop into foul brood, which is always propagated by germs. Corn never grows where corn was never planted. Foul brood can never start without the existence of microscopic germs, called, technically, *bacillus alvei*. Chilled brood might be a better medium for the reception of these germs than ordinary living brood, providing that the spores were in the air. A weak constitution in the human family is more susceptible to the germs of smallpox or yellow fever than a healthy vigorous person.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth \$1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

QUEENS FERTILIZED BUT ONCE.

J. D., Mississippi.—So far as our present knowledge extends, queens meet the drones but once in their lives. If a queen once produces Italian workers, she will always produce the same kind of bees.

TEXAS WHITE-CLOVER HONEY.

C. A. W., Texas.—Your sample of Texas white clover came duly to hand, and was tested. In color and body it is good. While better than the average grade of Southern honey as to flavor, it is not quite equal to the Northern clover, we think.

RUSHING OUT AT THE ENTRANCE.

H. L., Texas.—When there is a dearth of honey, feeding will always cause the bees to rush out to the entrance in excitement. The reason they fly out is because they are anxious to know whence comes this wealth of sweet, as it is evident to them that stores are coming in from some source.

WHY ARE THE BEES DYING AT THE ENTRANCE?

S. W. B., Ohio.—If your bees are dying at the entrance, and young bees are being carried out, it is pretty evident that they have been starving. Bees behave very much in this way when their stores are used up. The remedy, of course, is to feed at once, preferably granulated-sugar syrup.

A FRAME OF HATCHING BROOD, AND A FEW BEES, NOT A CURE FOR THE NAMELESS BEE-DISEASE.

H. M. H., New York.—Giving a frame of hatching brood and a few bees to a colony will not cure it of the nameless bee-disease, provided the source of the trouble is with the queen. Her removal always effects a cure, and this proves pretty conclusively that the disease originates with her.

VIRGIN QUEENS SOMETIMES THE CAUSE OF AFTER-SWARMING.

H. F. G., New York.—A surplus of young queens immediately after the first swarm is pretty apt to give rise to a second swarm; and as long as there remains two or more virgin queens in the hive, there is apt to be swarming. Second swarms sometimes come out when the young queen comes out for her wedding-trip.

UPWARD VENTILATION; WHEN TO REMOVE PACKING FROM CHAFF HIVES.

C. B. W., Ohio.—Our chaff hives—at least the two-story—are so made as to provide for some upward ventilation through the chaff cushion. In cellar wintering, upward ventilation is not only unnecessary, but it is even detrimental. We remove our packing from the chaff hives soon after frosty weather and cool nights, which with us is about the middle of May.

WHY BEES SOMETIMES TEAR DOWN FOUNDATION.

E. E. S., Illinois.—The reason why your bees tore down the foundation is possibly due to the fact that

very little if any honey was coming in, when bees have nothing to do but to gnaw around the wires and get into mischief generally. If you want them to patch up the combs again, feed them, or remove the combs and put them in the hive again, when honey is coming in at a fair rate. Bees never gnaw holes in foundation when honey is coming in.

TO PREVENT SWARMING.

T. G. D., Ohio.—It is very difficult to prevent swarming when bees get the swarming mania, as yours seem to have. The only advice we can give you is to give the bees plenty of room, plenty of shade, and ample entrance; and we would advise you to cut out all the queen-cells but one. In eight days, again cut out the remaining cells that may be found. Perhaps you had better hive the old swarm on top of the old hive. As soon as the swarming fever is over, unite the two again.

CAN OLD HIVES, AND COMBS IN WHICH BEES HAVE DIED, BE USED FOR NEW SWARMS?

M. U., Ohio.—Those hives which you have, which are spotted with dysentery, and in which the bees have died, during the past winter, can be given to new swarms, or, in fact, to other colonies. The bees will very soon set things to rights. They will clean the dead bees out of the combs, and make the hives just as habitable as they were before. For further particulars, see "Wintering," in the A B C book; also "Dysentery."

HOW TO GROW BASSWOOD.

M. N. E., Michigan.—On p. 292, 1882, we published an exhaustive article on basswoods—when to gather seeds, how to grow the young trees, etc. It was written by Fr. Holtke, Carlstadt, Bergen Co., N. J. If you will consult some nurseryman, we have no doubt he will give you the information you require. Usually, young basswoods can be obtained in the woods. If they do not abound in your locality, you can purchase them of A. I. Root, Medina, O., who will send you small trees.

FULL-WIDTH ENTRANCE; THE HONEY-BOARD AND BRACE-COMBS.

H. S. B., Maryland.—It will be best to allow the full width of entrance, if you have a strong colony, or if the bees cover, say, 6 or 7 frames tolerably well. It is only weak colonies, and during a honey-dearth, that the entrance of a hive should be contracted. So far we have no practical method for preventing bees from building brace-combs between the brood-frames and honey-boards. All that a honey-board can be made to do is to prevent brace-combs from itself to the sections or surplus arrangement above.

SEPARATING ADVERTISEMENTS FROM THE READING-MATTER, FOR BINDING PURPOSES.

A. C. M., Rhode Island. We have thought of that same matter you speak of in reference to the make-up of GLEANINGS before; but on account of the rush of advertisements at the very last minute, and the necessity of getting in an important editorial or special notice, our reading-matter crowds in sometimes on to the advertising space; and the advertising space, on account of the large number of advertisements, sometimes upon the reading-matter. This condition of affairs is well nigh unavoidable; at least, we can not obviate the trouble without great expense, and we are not sure that the inconvenience it affords a very few would warrant

it. A great majority do not bind their periodicals at all. Only a very few even file their journals, and there is perhaps not one in 200 who goes to the trouble to tear out the advertising leaves, and have the journals properly bound in cloth covers. We can tell pretty nearly what this number is, because it is much cheaper for those who want their journals bound properly to send them to us, which they do. In referring, as we are often obliged to do, to old journals, we frequently find the advertising pages of as much importance as the reading pages. In one case, quite an important fraud was exposed and brought to a stop by consulting the advertising pages of old bee-journals. The first bound volume we found had had its advertising pages stripped off before binding. We finally succeeded, however, in finding this same journal, bound, advertisements and all. For files of old magazines or journals, saved for reference, I should by all means prefer to have the advertisements left in.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 133.—*Does it pay to make any special provision for shade in an out-apiary, by means of shade-boards or otherwise, providing that the location does not afford trees or other natural shrubbery?*

No, it does not.

GEO. GRIMM.

Yes. I prefer a shade-board.

A. J. COOK.

This depends upon the construction of the hive. With our hive it pays.

P. H. ELWOOD.

Yes. If there is not already satisfactory shade, I would use shade-boards.

JAMES A. GREEN.

Yes, by all means. We make movable roofs, which improve the looks of the hives.

DADANT & SON.

I think it pays to shade hives from the full glare of the sun, both home and out apiaries.

O. O. POPPLETON.

Yes, where single-walled hives are used. With double-walled hives, or chaff, it is not necessary.

A. E. MANUM.

Yes, but much depends on location, the way the hives face, and how ventilated.

S. I. FREEBORN.

Yes. I have tried the shade of trees, and also the shade-board, and much prefer the latter.

A. B. MASON.

It does. No combs will melt if the roof of the hive is raised only one inch to admit of an air passage over the inside body of the hive.

C. F. MUTH.

I have no doubt that it pays, as I have always noticed that those that were partially shaded did better than those fully exposed to the sun.

P. L. VIALON.

If the hives are painted white, probably not. If the hives are a dark color, yes. Place the hives in long rows, and have the shade in the shape of a roof high enough for a person to stand erect under it.

MRS. L. HARRISON.

I think this depends somewhat upon latitude and location. For the northern half of Ohio, shade is

probably more a matter of mercy to the little cattle on sweltering summer days than an actual winner of dollars and cents. I am not quite sure of this, however; but it certainly pays to shade newly hived swarms.

E. E. HASTY.

With double-walled hives we prefer to set the hives in the sun. I think shade-trees are an injury. Our hive side walls are three inches thick; honey-board on top, $\frac{1}{2}$ inch thick. I put a cap over the hives, about 7 inches deep; roof boards $\frac{1}{2}$ inch thick. With that much protection from the sun there is no need of shade.

E. FRANCE.

No, nor anywhere else, providing the hives are painted white. Mine are all white that are painted at all, and I have never had any combs melt down, nor have the bees appeared inconvenienced by the heat. In one or two instances I have had the combs melt down in the unpainted hives, but not often enough to pay for shading them, in this locality.

G. M. DOOLITTLE.

Yes, by all means use a shade-board about two by three feet. I prefer this kind of shade for either an out-apiary or home apiary. I value it more highly than any other kind of shade. My reasons are given in my contribution to the *Review* for June, wherein will be found many articles from able writers upon the question of shade for bee-hives.

JAMES HEDDON.

I think it does pay to shade hives. It lessens the liability of melting the combs in very hot weather, and diminishes swarming. I use for shade on hives that stand exposed to the sun, about one yard of cheap calico, costing about 3 cents, tacked to two sides of a cover, and place the cover on top of the hive in such a manner as to leave an open space behind the cloth that hangs down on two sides of the hive. It is cheap and convenient.

H. R. BOARDMAN.

Owing to the construction of my old hives I never used shade-boards until the last two years on a different hive, and I have come to the conclusion that it does not pay to fuss with them. If there is honey in the flowers, the bees will be after it in full force, if the weather is as hot as blazes. If there is no honey, the bees might as well loaf on the shady side of the hive as to loaf inside. If you fear melting combs, don't use that kind of hive. A shade-board, to be of real use, should be made like a large umbrella; and even then every wind would disarrange them. In an out-apiary they would be a positive nuisance from the above cause. Let us let the shade-board go.

RAMBLER.

Bees, by fanning and partly vacating their hive, have, like the healthy human system by perspiration, the power of regulating the internal temperature. I find most danger of melting down combs while extracting or otherwise disturbing the normal condition of the hive. It seems to me the disadvantages of the shade being in the way, and its shading the bees when they would be better without it, overbalance all the good results where the thermometer does not go above 100° in the shade more than five or six days in the season. When the thermometer rises above 95° I should prefer to have some one present to elevate one end of the cover, or in some way assist the bees temporarily to ventilate the hive and save the bother and expense of a cover.

R. WILKIN.

During the hottest weather I think it may pay to use cheap shade-boards, or long grass, held on with a stick of firewood; and yet those hives which don't happen to have trees to shade them are generally left without shade, in my apiaries. I value shade comparatively little for the bees; but I want shade for the comfort of the operator, and could not think of locating an out-apiary where no shade could be had. My son, after reading the above, says Mr. Oatman would have given him a serious talking-to if he had omitted shade-boards, as combs would melt down if the hives were left unshaded. It occurs to me that an important difference in the two cases is that his hives are closed tight, except at the entrance, while mine have an opening at the upper back end of the brood-chamber, so that a current of air can pass directly through.

C. C. MILLER.

When doctors disagree, who shall decide? In reading the above, I have been quite a little amused, because I have at different times, in years past, decided in favor of shade, and then, again, I have decided that I would not have the shade if I could have it for nothing. My final decision has been, however, that the grapevines, arranged as we advise, are all the shade we need. During the spring months, when we want all the sunshine there is, there is no foliage on the vines; while during the great heat of summer, the foliage is most needed, and can be easily regulated then by clipping the shoots with a common sickle. I do not believe that we could ever be persuaded to bother with shade-boards, one for each hive.

QUESTION 134.—a. *How much per colony do you estimate it costs to move bees to and from an out-apiary?* b. *Does the cartage of bees figure as any considerable item in the cost of honey production?*

I have had no experience.

A. J. COOK.

I have had no experience.

PAUL L. VIALLO.

I have had but little experience in moving bees.

O. O. POPPLETON.

a. For taking and return, about 15 cents per colony. Better management might greatly reduce that. b. Yes.

C. C. MILLER.

a. I have not had very much experience in this line, but I think 20 cents would be a liberal estimate. b. I think not.

JAMES A. GREEN.

The cost is a trifle, and the trouble involved lies more in the danger of damage to the combs and bees than in any thing else.

DADANT & SON.

a. I don't know. b. An inconvenience, as time is money, and expenses should be considered when making up the cost of production.

C. F. MUTH.

That depends upon the number of hives to be moved, distance, accessibility of location, etc. I should think that 50 cents per hive would probably be a fair average of cost of moving and returning.

MRS. L. HARRISON.

A man and team will move on the average about twenty-five swarms per day. Make your own estimate. b. The cartage is not so large an item as the extra trouble and expense after. Not many beekeepers will stand it to ride ten or twelve miles per day and do a large hurrying day's work besides.

P. H. ELWOOD.

I have had no experience in moving bees to out-apiaries; but from what I have handled bees, I should place the cost at not far from 50 cents per colony for moving them five miles in the spring, and then back again in the fall.

G. M. DOOLITTLE.

a. In moving 105 colonies last year, 18 miles, both ways, it cost about 90 cents per colony, not counting the loss of those killed. Should we count the damage to the 15 swarms that were killed, it would make the expense of each about \$1.75. b. Yes, if moved far or often.

S. I. FREEBORN.

a. That depends upon the distance and condition of the roads, and conveniences for hauling. It costs me about 25 cents per colony to move bees to and from an apiary six miles away. b. Yes, the actual expense and loss of colonies (if any are lost) should be figured as expense to that particular apiary.

A. E. MANUM.

It depends very much on the size of the hives. Our hives, we can take only 12 colonies at a load. Then again the distance to move would make some difference. We don't move our bees home to winter. Our bees are all wintered on their summer stands. All the moving we do is to equalize out-apiaries, and to gather from the different yards bees to form a new apiary.

E. FRANCE.

a. It doesn't generally cost me any thing, for I have my own horse and wagon; but once it cost me a new dash to my spring wagon, and part of a tug to the harness, and over a mile walk, saying nothing about the trouble of combing the stings off my head. I had more hair then than now. b. As the cartage doesn't cost me any thing, it doesn't figure in the cost of honey.

A. B. MASON.

It depends very much on the skill or tact of the apiarist, the convenience for handling, etc. If I had to move all of my bees back and forth to out-apiaries twice each year I should consider it a big job. I have wintering-repositories at all my out-apiaries. I think it is impossible to answer the question definitely in the short space allowed. Bees may be moved quite cheaply, or it may be a very expensive work.

H. R. BOARDMAN.

a. It would not do for me to give you an estimate in figures, because so very much depends upon your location, the distance you propose to move, the roads, and the methods employed, and the price of such in your locality. b. Yes, the cartage of bees from one place to another in moving them after honey secretion, considered in all its lights, not only money outlay but attending dangers, labor, care, attention and all these things, is, in my judgment, always of more cost than it comes to.

JAMES HEDDON.

As I never had an out-apiary, my estimate can have no special value in comparison with the actual figures which experience can give—but, here goes:

Moving apiary of 20 hives—			
Team 1 day at \$2.00	-	-	\$2.00
Man 3 days at \$1.25	-	-	3.75
			\$5.75
Same in returning	-	-	5.75
Total	-	-	\$11.50

This would be one cent a pound on 1150 pounds of honey, and oftentimes the surplus they would gather would be less than that.

E. E. HASTY.

NOTES AND QUERIES.

a, b. This depends upon distance and other things. It will cost from 10 to 15 cents per colony to move them a distance of 10 or 15 miles, figuring hauling, etc. It depends, of course, a great deal upon the condition of the hive and season of the year. In the spring and fall, when there are no supers to trouble with, I can prepare 20 colonies (one load) for hauling in about an hour. I always use a notched cross-bar in the bottom of the hive to hold the frames apart, and also have the ends of the frame rest in notches, so that all I need to do is to screw down the cover and tack a screen across the portico.

GEO. GRIMM.

a. With me a teamster has made ordinary wages in hauling my bees 20 miles for 12½ cents per hive. He would take on 80 hives with four horses and a trail (a wagon hitched on behind), at a load; but with me I would add another 12½ cents for preparing the hives to ship (I do not use close-fitting frames), and the disadvantages from bees, mixing up by change of locality. Besides this, and what would deter me from moving much more than the cost, is the dread of mishaps from teams, although I have been hauling them a great deal for the last thirty years, with no greater loss than the breaking of a wagon-tongue; but I know there is constant danger; but with two men (one of them a bee-man), with two horses easily detached from the wagon, they can be moved with almost positive safety. b. Ordinarily I would say, certainly not. R. WILKIN.

a. I winter my bees in a cellar at the out-apiary. There is no cartage expense. If they were brought home, the cost would depend on many things—time in preparing bees for cartage, number of colonies to be carted, distance, and whether one or two horses, etc., were employed. As I fix my hives for carting, I would estimate the cost of moving 100 colonies to and from the home yard at 15 cents per colony, for a distance of not over five miles. b. I do not consider the carting much of an item. I would itemize the foregoing as follows, from the home apiary:

33 hives at a load, distance 5 miles, cost of team per trip, \$2.00.	Three loads, \$6.00
To home apiary, - - - - -	6.00
Two hours' work preparing 33 swarms for cartage, about 4 minutes to a swarm, 25 cents per hour, or for the 100 colonies for two movings,	3.00
Total - - - - -	\$15.00

The above team's work, I think, could be done even cheaper for the distance, in my locality.

RAMBLER.

The above seems to cover the whole ground so thoroughly that I do not know that I have any thing to add. I was quite interested in what R. Wilkin has to say; for in California they do a great deal more moving of bees than we do; and it will for ever remain a mystery to me how they carry bees up in the canyons, especially such a one as I first passed up in company with friend Wilkin, and Mr. and Mrs. Mercer. It seemed to me that the only way to get up there was to carry one hive at a time, by hand, through the worst places. Our folks here in Ohio would have said, without hesitation, that it would be madness to think of driving a horse and buggy through such passages, leaving bees entirely out of the question.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

Please do not forget those apple-barrels that were the shape of a stovepipe. Please tell Ernest to give us Our Own Apiary at least four times a year.

Dorr, Mich.

JOHN SHORT.

COCKROACHES.

Mr. W. L. Coggs, West Groton, N. Y., sends me some cockroaches, with two of the egg capsules. He asks me to give habits, etc., through GLEANINGS. As I have already done so on p. 882, 1888, it is not necessary to repeat it. They are doubtless about his hives for warmth and shelter, and possibly for honey.

A. J. COOK.

Agricultural College, Mich., June 5, 1889.

O. O. POPPLETON AND THE ORANGE-BLOSSOM HONEY.

I protest against the statement made by Mr. O. O. Poppleton, regarding orange-blossom honey, page 444. It is the *surest* crop of honey of any during the year; but bees are not always in condition to store it in great quantities; but it always starts a boom in brood-rearing, and with me it is the best season for queen-rearing. They worked 6 weeks on it this spring. The conditions were good. I have had 5 years' experience.

NELLIE ADAMS.

Sorrento, Fla., June 5, 1889.

ARE BEES TAXABLE PROPERTY?

Are bees taxable? I am the assessor of this township. I was also assessor last year. I have not listed bees for taxation, neither have my predecessors. I told the preceding assessors they were not. I gained that impression from GLEANINGS.

D. P. LISTER.

Lac-qui-parle, Minn., June 10, 1889.

[We have for a good many years paid taxes on our bees. The matter was discussed at some length in GLEANINGS several years ago. Doolittle and some others thought bees should not be taxed, while I took the ground that they were just as much property as horses, sheep, or cattle. In some places they tax them and in others they do not. I prefer to have our bees taxed, because it gives me a clearer conscience.]

FROM BOOMING TO DOING NOTHING.

I wrote you last week that "bees were booming here." They were at that time; but the very next day the weather changed from warm and pleasant to cold and wet, and the bees have done nothing for nearly a week. Hence some of my neighbor bee-keepers are getting a little "blue;" but, not I—oh, no! I have lots of courage yet in reserve, hence I am hoping, and shall continue to hope to the last.

Bristol, Vt., June 10, 1889.

A. E. MANUM.

ON THE VERGE OF STARVATION.

Bees have been on the verge of starvation for several weeks during the continued cold stormy weather that has prevailed. Many have actually perished, and those not actually dead are badly demoralized. I have visited a number of apiaries, and find this condition prevailing everywhere. White clover is coming forward now, so that they are getting enough from day to day to just barely keep the wolf from the door. Careful watching and feeding has saved mine, but not without considerable damage.

H. R. BOARDMAN.

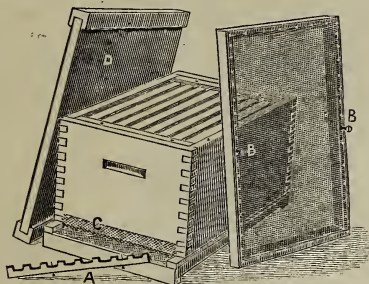
East Townsend, O., June 11, 1889.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

THE DOVETAILED HIVE FOR SHIPPING.

ON pages 468 and '9 I incidentally referred to the special fitness of the new Dovetailed hive for moving and shipping bees. When we changed from the beveled to the square edge, we had no idea (*we* means Mr. Warner, Mr. Calvert, and your humble servant) that the square edge made the hive better adapted to moving bees. Why so? In the first place, the bottom of the Dovetailed hive can be made permanent or movable. For the purpose of moving to the basswood orchard, we have been having all the bottoms secured to the hive by means of two screws, one on each side and centrally located. Two wood screws were found to hold the bottom very securely. With the beveled-edge Simplicity, it is practically impossible to fix the bottom on account of the beveled edges. After the bees have been moved in the Dovetailed hive and it becomes desirable to raise the brood-chamber up, or in any case where the removal of the brood-chamber becomes necessary, all we have to do is to tip up the hive, and with a screwdriver remove the two wood screws. Propolis will hold the bottom-board and hive together during the operation. The hive is then set back in position, when a screwdriver will readily loosen the bottom-board. Having obtained some photographic views I will now proceed to give you a more detailed description.



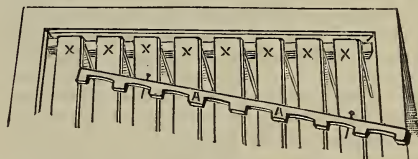
THE DOVETAILED HIVE PREPARED FOR SHIPPING BEES.

In the cut, the bottom-board has been secured by the screws referred to. The entrance is closed by a piece of wire cloth of suitable length, and folded longitudinally through the middle. For moving short distances, two or three tacks will secure it. When shipping by express it is better to use a number of tacks, as shown in the engraving.

The wire screen is simply a section of the Dovetailed hive cut off so as to make a rim $1\frac{1}{4}$ inches deep. These rims are made from dovetailed sides and ends which are defective, either because of knots or checks. A piece of wire cloth 26 inches wide is cut in two in the middle, longitudinally, making a strip of just the right width to tack upon the rim. In the center of each side to the rim, a screw-hole is made, and the screen is

secured to the hive by two screws, B, B, as shown in the engraving. There is no tacking, pounding, nor driving of nails when putting on the screen, nor, in fact, when removing the same.

To secure the frames from shucking about, we use a notched stick, shown at A. One of these strips is tacked to the bottom-board, notches upward, to space the bottom-bars; and two of these strips are used at each end above the frames. The strips are of the right width to fill up the space taken out by the rabbet; and when the wire screen is screwed down, these strips are held by the end pieces of the rim. In the engraving, the notched sticks are represented as being nailed to hold them securely. In shipping by express this will be a necessary precaution; but in ordinary moving, the screen itself, with the usual amount of wax and propolis, prevents the strips from coming out of place. To give you a better idea of fastening the frames, the enlarged drawing below has been made.



The notches, A, A, slip down between the spaces in the frames X, etc. It may be asked in this connection, why we do not use the spacing-boards which we have advertised for some years back. Principally because they were too much trouble. In each hive six boards were required, and these are to be nailed on the ends on the inside, three at each end. On account of the usual amount of propolis and wax that is deposited upon the sides of the frames, we find it a very difficult matter to shove the end-bars down into these longitudinal grooves in the spacing-boards. The operation becomes still more difficult after the bees have fixed them with propolis. Some of the worst cases of robbing and stinging we ever had were brought about in the effort to remove the frames from the spacing-boards. When I come to compare the ease of manipulation of the notched sticks I almost wonder that we did not discard the boards sooner. The time occupied in preparing some 20 or 30 hives for shipment, or for moving, is now reduced to a minimum, and we are sure that our customers will welcome the change.

I am aware that, for all wood frames, and for ordinary moving to out-apiaries, the spacing-strips will not be absolutely necessary; but as the frames we moved were metal-cornered, and as it was early in the season, before brace-combs were built out, we found that the spacing-sticks were necessary. They are certainly necessary in any case for shipment by express. If the Hetherington-Vandeusen frames are a success we shall not need the spacers at all.

P. S.—Of course, it will be understood that the notched sticks—in fact, the whole arrangement above, is old; but it is good just the same. Such bee-keepers as A. E. Manum use the notched stick.

MYSELF AND MY NEIGHBORS.

Thou shalt love thy neighbor.—LEV. 19:18.

YOU may wonder why I did not add the customary "as thyself." But I prefer to leave it off—at least just now—because it seems to me that this old command has been repeated so often that it falls on the ear almost without effect. Another thing, quite a large class of humanity smile, or sometimes laugh outright; and others go even so far as to jeer and throw ridicule whenever the subject is mentioned of loving *anybody* as a man loves himself. People say, "There can't anybody do it;" and, again, "Nobody ever did do it;" and, "It is all humbug," etc. Perhaps some of these friends forget that Christ Jesus did actually, through every moment of his life, love his neighbors *more* than he loved himself. Well, mankind will have to have their own way, I suppose. Those who ridicule this little text, however, are, I believe, without exception, bad, selfish men. They oftentimes say it would be a good thing if people *would* actually love others more and self less, and then they go on and tell about pretense and hypocrisy, and they say we Christians do not have any more love for our fellow-men, when we come right down to it, than other folks; and I think very likely we need a great deal of exhortation in this very line. All I am going to ask you to-day is that you shall love your neighbor. If he is not lovable, love him as much as you can. If he hates you, even then the best thing you can do is to love him. If he is hateful and abusive, do not get weary in trying to soften him by kind acts. Do not pay any attention to his unkind words or spiteful actions. Try to love your neighbor, whoever he may be. Yes, try to love *all* your neighbors, and to do them good. If something happens that is going to take money out of your pocket, try to see if it does not put money into the pocket of somebody else, and be happy because of the good it does *such* a one. I know what it is to get into a strife to see who shall get the most trade and make the most money; but I know, too, that we can fight down this natural desire to accumulate ourselves, and find a far greater happiness in seeing our *neighbors* accumulate and prosper and do well.

I have said considerable of late about low prices. I have suggested to you, that, if you received only from 10 to 15 cents a bushel for your potatoes, some neighbor of yours got his potatoes exceedingly low. You may urge that there is reason in all things, and that a man can not be very happy and feel very pleasant when he does not get enough for his produce to pay the cost of production. Yes, there is truth in this; but for all that, when circumstances make it necessary for you to sell to your neighbor something for less than it actually cost you, you can still congratulate him on his good fortune. Your loss is his gain. Another thing, we Christians have the promise that, if we seek first the kingdom of God, and his

righteousness, all things else shall be added unto us.

I told you, June 13, that we were getting 15 cts. a quart for our strawberries. Just after our journal went out, however, the boys on the wagon reported that we could not sell them as fast as they were picked, unless the price came down. So they came down to 14 cents; then to 12; then to 10. Each decline started a fresh run on them for perhaps a day; but when people began to find that the berries were dropping regularly each morning, they very soon began to take it for granted that it was to be the regular programme, and so they would not buy to can until they got lower. When they got down to 8 cents I thought that was low enough—we certainly ought to have 8 cents for such nice berries. But as people would not buy the 10 or 12 bushels we were picking, at 8 cts., what was to be done? We had had some experience in letting a lot lie over, and that certainly did not pay. Our customers were beginning to say, "If you will give me some that were picked this morning, I will take some; but I don't want any that were picked yesterday." Some went even so far as to decline having any in the evening that were picked the same morning. We remonstrated; but they knew we were picking all the while, and they preferred those which had been only an hour from the berry-patch, and that had not been jolted around on the wagon. There was no help for it. We were obliged to carry a few at a time, sell them off, and then go back for more, thus making quick work from pickers to consumers. This state of affairs rendered it still *more* necessary that the berries be made to go off at *some* price. Well, they went down to 7 cts.; then to 6; then to 5 cts.; and one day I felt a little blue when the boys declared that the whole town of Medina (2000 inhabitants) would not take all the berries we were picking, even for 5 cents. They suggested shipping them off somewhere. Now, my experience in shipping off garden stuff has not been very favorable. Sometimes it sells for enough to pay the express charges, and sometimes it doesn't. The berries *must* be sold in Medina. Mr. Weed suggested that, if we could get rid of what we had on hand, maybe we could keep our heads above water. I accordingly went round to the hands in the factory and asked how many wanted some nice strawberries, just picked, for only 5 cts. I looked pleasant and good natured about it, but there did not seem to be any demand, even at this very low price. I have been told that some said they guessed the berries would be lower still than 5 cts., next day. I confess I was inclined to feel a little bit discouraged, and I don't know but I did suggest to my wife that I would plow up part of my vines and not raise so many berries, especially as it seemed evident that we were raising too many for our small town. I had not yet read friend Terry's article, which you will find on another page, in regard to this matter; but when I did read it, it caused me to smile. My wife suggested that our beautiful berries, instead of affording me recreation and enjoyment, were adding to my

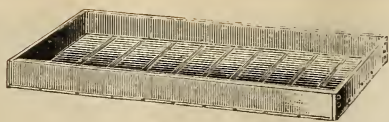
cares, and making me look worried. It would be a little sad if *strawberries* should be the means of *adding* wrinkles to my face that is already pretty well furrowed. Some of you may say, "Surely A. I. Root would, at such a crisis, have taken his cares and perplexities to the kind Father; for, in fact, he taught just that in his book, 'What to Do,'" and with all the advice that this world can furnish in regard to what to do in perplexities, is there any thing to be compared with that beautiful injunction, "Cast thy burden on the Lord"? As soon as I thought it, however, I began to be a little ashamed of myself. If I were a poor man, on a little homestead, with a mortgage hanging over me, and I were depending on my berries to help to lift the mortgage, then I might complain about getting only 5 cts. a quart. If sickness and death were near, and money were needed to pay the doctor's bill, then might I pray God to help me to get better prices. As it was, I actually felt ashamed to ask the kind Father for any help at all in that direction. I did ask him, however, to help me to feel happy and glad because I was able to give nice fresh berries to my friends and neighbors for only 5 cts. a quart. Well, the prayer was answered very speedily. I became glad and happy "straightway," as Mark says. My daughter Constance (Blue Eyes, you know) has been taking me to task for using the word *got*. It came in once or twice in my last Home talk, and she says it is not "good grammar." Well, whether it is good or bad, I "got" happy. I really enjoyed selling berries for 5 cts. Then what do you think happened? Somebody, I really don't know why, suddenly concluded that the berries might not get any lower, and ordered half a bushel at 5 cents a quart. Then another neighbor thought they would take the chances, and take theirs for canning at 5 cts. And pretty soon somebody suggested that the berries would come *up* very soon. Now, you may think it strange; but within an hour we engaged more at 5 cts. a quart than we had to spare; and pretty soon the young man who superintends the children who are doing the picking, told me they were not going to have as many as they *had been* getting. By the way, this young man is one of the printers. It is a rather dull season just now in the composing-room; and as he had often begged to get outdoors we gave him this post. You ought to see how we have tanned him up during the last ten days. He seems to prefer to be outdoors, however, for all that. Well, after we had taken as many orders as we dared to at 5 cents, we took some more at 6. Meanwhile the people had "got" an idea that the price of the berries was running up again, and everybody was in a hurry to buy. Up they went to 7 and then to 8; and then came the state of affairs where we charged one man 8 cts. for his berries, and the other 6 or even 5, because they were to fill an old contract, made when the berries were low.* This taught us not to make any

*At one time, to fill our contracts we tried to buy some berries of a neighbor; but the best price he could make to us was 6 cts., therefore we should be obliged to pay 6 and sell for 5, because we were so thoughtless as to make a contract beforehand, for the delivery of berries the next day.

more contracts. So the men on our wagon told the customers, "We will pick and deliver them any time you wish, but we can not agree on any particular price. You can have them *now* for 7 cents; to-morrow they may be 5, but they may also be 8 or even 9." This little transaction has tended to give me more charity for people who change prices often. In fact, it gave me my first insight into this matter of fluctuations of the market, and it led me to see that it is proper to change the price not only daily, but, under some conditions, and under some circumstances, hourly. When the prices were low, it was really pleasant to see people coming with all sorts of utensils for strawberries; and I believe now that I enjoyed selling them as much (or even more) at 5 cents as I did selling them at 15. All that prevented me from being pleased and happy on the "down grade" was because I hadn't got enough of the text, at the head of this little sermon, in my heart—"Thou shalt love thy neighbor." And I confess that, when prices began to go up, and the children and some poor people who could afford them at 5 cents, but could not at 10 or 15, I began to feel sad for *their sakes*. My friend, when your neighbor's interest is so much in your heart that you *forget self*, and rejoice or feel sad at *his* loss or gain, you are getting pretty near to the kingdom.

Well, we got on swimmingly, and I enjoyed harvesting the berries very much. I enjoyed this matter of demand and supply, and fluctuations in the prices, and especially the positive proof that Medina could not only take care of 15 bushels of strawberries a day, but perhaps twice or three times that amount, until Saturday night came. We had had some little experience with Saturday night, but not very much. The weather was favorable, and, oh how the berries did ripen! Before we got through the patch once they were riper where we commenced than they had been when we started. Some of the boys talked toward night of picking no more if I could not sell them; but I told them that the berries must be picked, and that they must be sold or given away. The wagon went all over town, and visited every customer of ours; but after the men returned late in the evening, there were four or five bushels of berries yet to be disposed of. As our baskets all became full, the pint boxes full of berries were scattered everywhere along the rows, and little patches here and there were seen in groups up by the fence. In fact, bright, beautiful luscious strawberries stared at us everywhere. There had been such a hurry to get them picked before night, that they were set around everywhere, and nobody knew what was to be done with them. There was some talk of carrying the pint boxes by hand, because the *baskets* were all full; but I suggested setting them on one of the shutters of the hotbeds. Finally Mr. Wright, the printer, got hold of some of the shallow trays we use for celery-plants. To refresh your memory I will give you a picture of one.

Each tray holds 24 pints. They were wheeled up to the factory on our Daisy wheelbarrows, and then they were set along the front of the door, on a stand that was



THE TRAYS WE USED TO HOLD OUR PINT BOXES OF STRAWBERRIES.

made to exhibit new goods. They made an impressive show, I tell you. I proposed to sell what I could, to the people who passed by. Ours is a public highway, and on Saturday night there were more or less vehicles passing almost constantly. My wife suggested that we should mark in plain letters, on a nice clean smooth board,

FRESH STRAWBERRIES, ONLY 5 CENTS A QUART.

Ernest got a board and did the marking, and I commenced calling the attention of the passers-by, when they did not seem to notice the berries, myself. Somewhat to my surprise a sale was made to the occupants of almost every vehicle. Pretty soon it became too dark to see, but there were bushels of berries remaining. At this juncture Mr. Weed brought a large lamp from the factory, and set it near by the bulletin-board. Well, before ten o'clock every berry was sold. The people went away happy, and I felt happy, even if the coppers and nickels in my pocket did pull down rather uncomfortably. The coppers and nickels would keep over Sunday, without spoiling, even though the weather were hot and damp, while the strawberries—well, I felt sure they would do good, and make people happy, at only 5 cts. a quart.

Now, then, friends, I have told you this little story because I think likely it will be helpful to some of you in selling your products. A plain bulletin-board, a good display of what you have for sale, assisted by a lamp, if it is a still evening, after dark, makes a very pretty advertisement. Back of it all, the owner must stand, with *love to his neighbor*, in his heart. All the rest will take care of itself. Now, whenever you are inclined to murmur or complain—when you say farming does not pay, or the special occupation whereunto God seems to have called you does not pay, please have confidence enough in your old friend A. I. Root to believe he is right when he says the trouble is not in *farming*; it is not in your *chosen occupation*, and it is not with your *neighbors*—the neighbors God has given you, but it is because in your own heart you do not “*love your neighbor*.”

P. S.—Constance suggests that it is not dignified, and she does not think it is the thing to do, to speak to people who are riding by, no matter whether you know them or not, and ask them if they don't want to buy some strawberries. She thinks it is too much like peddling. I told her that I should never object to seeing peddlers, provided they carried some product of the soil that they had raised themselves. Some of the friends laughed at my zeal in disposing of the berries, but none of them seemed to be displeased. Toward the last, a buggy went by in the dark. I could not see very distinctly, but after he had replied very sober-

ly and sedately that he did not think they could very well use any more strawberries just then, we found out that it was my son-in-law, Mr. Calvert. This raised a pretty big laugh from the bystanders; but I was so very enthusiastic in disposing of the great lot of berries, that I proposed to treat friends and foes (that is, if I have any foes in Medina County) all alike.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

TOO MANY STRAWBERRIES, SMALL FRUITS, ETC.; FRIEND TERRY GIVES US A LITTLE FRIENDLY TALK IN THE MATTER.

MR. ROOT:—In GLEANINGS for June 1 you spoke of the overproduction of potatoes, and the prospect of an overcrop of strawberries. Now, do you know I was almost provoked with you for not making use of such a good opportunity to preach a little sermon on my special hobby? For forty years to come there will be no danger of overproduction among the farmers (and many bee-keepers that I have met can be added in), in the line of growing abundance of strawberries and other fine small fruits for their own home use, and I know of no work in the world that they ought to be more happy while doing. I am getting more and more in love with my fruit-garden, as well as with the delicious fruit we are getting. Would that I could take every reader of GLEANINGS, who is behind at all in this respect, by the hand and have a full hour's talk with him while walking among the loaded bushes and vines in my garden or yours! Wouldn't I talk my best at him? Wouldn't I keep his mouth full of great Jessie, Bubach, and Cumberland berries? Then I would try to interest him in the growing of vines. I would show him single leaves 5 inches long, one of which would cover a pint bowl, on plants set this spring; then take him among the raspberries, and show him bushes, set only a little over a year, loaded with berries.

Some farmers have a little bed of strawberries, perhaps two or three square rods, from which they get just a taste of this great luxury. That wouldn't suit me at all. I would set out ten times as many, with an ordinary-sized family, and tend them in long rows, with a horse, and have berries by the bushel, as free to children and all as water, for a month if possible. We have now a bushel a day of splendid fruit, and we eat and can every one of them. (No, I took much delight in carrying a peek to a neighbor, yesterday, who doesn't have any.) Extravagant? What! when I and the family did all the work on them, and if they were together in solid compass (they are between raspberry rows you know) they would hardly occupy more than 15 rods of earth? I don't think so.

I saw Mr. Fenn at the Horticultural Society in Tallmadge, the other day, and he told me about your rows of strawberries. I do wish I could see them. Won't you tell us how far apart in the row you set the plants, and, when you get through, about the average yield per hill?

The Bubach is our grandest berry. The Haverland is not so large, but extra good size, and the berries just lie in piles. The flavor is not quite perfect, to my taste; but with 13 kinds, I may be get-

ting rather particular. There is no berry on our grounds with any nicer flavor than the old Charles Downing; but they are light yielders, and easily hurt by the frost, like the Sharpless. The Jessie is good, and a fair yielder, but not up to the Bubach.

Do you know I had to laugh when I read in GLEANINGS that you were not quite certain that farmers could not afford to grow potatoes in a small way where they hadn't the machinery and aids of the large grower? What do you suppose I had been doing that morning? Why, following Breed's weeder, as a new tool is called, over seven acres of potatoes. It was drawn by one horse, and could hardly be called work for him or myself. Now, what did it do? Why, in going once through the field I stirred all the soil that I could with a one-horse cultivator in going twice, and at the same time moved every bit of soil in and around the hills—hoed them. In the afternoon, wife and I took a ride. We saw a man with perhaps two acres of potatoes, hoeing them slowly by hand, after having cultivated them. We calculated that, at the rate he was working, it would take him one day to hoe half an acre (in drills), or over 15 days to do the work I had done in the forenoon. Which can ride out the most? which can get time to "fuss" with berries best? Which can get the most time to do his work promptly and as well as he knows how, and can live and respect his calling instead of being a drudge?

But, enough. You know I love to accomplish something when I work. Don't fear the overproduction of potatoes. There are two sides to this. When farmers get large prices, how many thousands of poor people have to pay altogether too much? Welcome cheaper production and only fair living prices for farmers, for the sake of the great number of poor people who will be helped. With our machinery we made money last year on potatoes—did well enough. It hurt me to sell potatoes to men who had hard work to make a very bare living, for 75 cts. to \$1.00 a bushel in 1881 and 1887. To be sure, it was market price, but—well, I found a way to ease my conscience, sometimes, when selling directly to individuals.

Dr. Talmage says the Almighty will smite this people if they do not stop inventing machinery to take work from poor people. For himself, he says, if I remember correctly, that he hopes there will not be another tool invented in 500 years. But he is all wrong for once. His head is out of level. Flour and potatoes are cheaper to-day for the poor man to eat than they would be without the binder and the potato-planter; and there is work enough for all, and better wages, than in anti-machinery days. Then see the great saving to the farmers' wives in the line of less help to board, less drudgery and tavern life, and the nearer approach to a perfect home. See how the farmer can now accomplish much without slavish toil. Welcome to labor-saving machinery, I say. T. B. TERRY.

Hudson, Ohio.

Well, I am very glad indeed, old friend, to know that our ideas have been so much in the same line. You will, of course, see what I have said under the head of Our Neighbors, in this issue. I do not know that I quite get your thought in regard to farmers raising small fruits. Where they raise strawberries for sale, I think they might devote more ground to this one crop

than is profitable for *that locality*. Last season we had so many Alaska peas (and we got them on the market before anybody else had any also) that they could not be sold without running the price down to a point that did not pay expenses; and even when we loaded the wagon and sent them off eight or ten miles to adjoining towns, the whole crop could not be sold at a profit. I made a blunder by planting *largely all at one time*. This year I blundered the other way, because I did not plant enough. For three weeks we have been getting 50 cents a peck for every pea as it ripened, and customers quarrel as to who shall have them, even then. We had only about half enough. The remedy is to make successive plantings every week or ten days, and be sure to have enough, and not very many more than enough. We can not do this, however, with strawberries. If you mean, however, that no farmer or anybody else who has a little patch of ground can make a mistake by planting enough to give his own family a great abundance of strawberries, then I *heartily* agree with you. Almost every spring my health begins to fail by care and overwork, just a little before strawberry time, and for several years I have been looking forward to fresh strawberries as a sure means of "fetching" me up. This year I was in such haste to receive the benefit of the "strawberry tonic" that I ate a little too freely of them when they *first* ripened. I began to feel troubled for fear strawberries would not work *this* season. I soon found, however, that it was because dame Nature did not want the new medicine too abruptly. By increasing the dose daily for a few days, I *soon* found that I could eat two large saucerfuls at a meal, and ever so many more between meals, and grow fat and happy on them. Of all the different "cures" that have been invented in times past, give me the strawberry cure. Well, now, there is but little question but that other people will be benefited just as I am benefited. But they can not very well afford the expense unless the berries are afforded cheaply; therefore I am glad, as you are, when strawberries (and potatoes) are offered at very low prices. But I still think that, where one wishes to get the very most benefit from strawberries, he should raise them himself, not only that he may enjoy seeing them grow, but that he may feel that the supply is unlimited—that he may eat just as many as he has any inclination to, without having his conscience trouble him because he is extravagant.

You speak about canning them. My wife has often urged me to eat largely of *canned* strawberries, to see if they would not bring me up as well as the fresh ones do. They have never yet filled the bill very well, therefore we have not been in the habit of canning very many. Our patch of Jessie strawberries, mentioned by my cousin, D. E. Fenn, are planted just 3 feet apart, after digging our early potatoes, as I have described. They are 10 inches apart in the row. We have not kept account of the product, but I should say that they average perhaps half a pint to each plant. Next sea-

son the same plantation will doubtless give a much larger crop; but I seriously doubt whether the Jessie or the Sharpless either will give as much fruit per plant as the Crescent and Wilson, and perhaps some others. Our objection to the Crescent is the small size; but still a great many of our customers this summer decidedly *prefer* the small berries to the great large ones. Some of them will not have the large ones, as they say they are tasteless, etc. The Bubach is certainly a massive berry. We, like yourself, have single leaves that would cover a pint bowl, and the berries are monsters. But they are all gone after one or two pickings, while the Crescent, with its great clusters of small berries, still keeps the pickers busy. Sometimes I think there is no better berry, all things considered, than the old Wilson. Then, again, I am inclined to favor the Crescent. Finally I decide that no berry-patch is complete without half a dozen, or, better still, a dozen, of the popular kinds. The Jessie is valuable because it is so early; and the Jersey Queen, because it is so late; besides, the Jersey Queen is one of the handsomest and best berries that we have on our grounds. It is not as strong a grower as the Sharpless and Jessie, however, and it doesn't bear any thing near as many berries as the Crescent. I am astonished to hear that Talmage ever said or wrote any such folly. Our proof-reader says he thinks there must be some mistake about it. To intimate that man's inventive faculties are not a wonderful gift directly from the Almighty, seems to me, savors of infidelity. Farmers complain that wages are so high, and produce so low, that they can not keep on farming. Now, if this be *true*, the *laboring* classes have been benefited in both directions. Amen to your concluding sentence!

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

MANUM'S MODIFIED SWARMING-DEVICE.

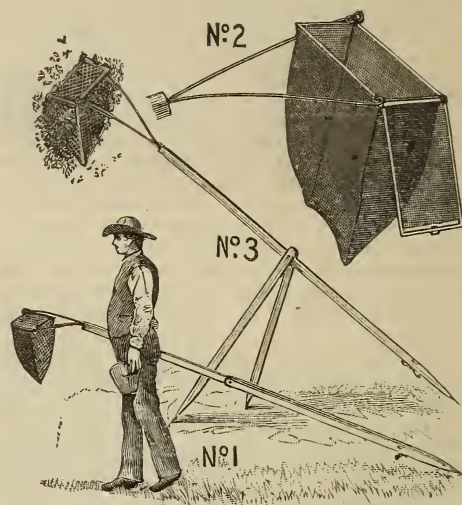
IT will be remembered that our friend A. E. Manum clips all his queens' wings. As some of our customers want their queens clipped and others do not, we practice no clipping, leaving the purchaser to follow his own option. Our queens, unless prevented by perforated zinc, always accompany the swarm. On page 542, July 1, 1888, I mentioned a swarming-device modified from A. E. Manum's implement, which has given us most excellent satisfaction. Our device differs from friend Manum's in that we use a larger wire-cloth cage. His will hold perhaps a quart of bees, while ours will hold several. As it was late in the season we made no engraving of it then.

While Manum's arrangement is better adapted for those who clip their queens, ours is more suited for those who practice no clipping. Fig. 2 represents the wire-cloth cage or basket; Fig. 3, the device in position, receiving the bees as they cluster on the outside of the cage. Fig. 1 shows the

bees after they have clustered, and the apiarist in the act of walking off to the hive.

METHOD OF CAPTURING SWARMS.

Instead of looking for the clipped queen as soon as the swarm issues, we wait until it begins to cluster. As soon as a cluster is about half completed, we run the basket up to and around the cone of bees. An assistant, if present, gives the limb a jar, so as to disengage the bees into the basket. In case no one is ready to assist, a sliding movement will precipitate the cluster into the wire-cloth cage, when it is quickly lowered.



MANUM'S SWARMING ARRANGEMENT AS MODIFIED BY THE FOLKS AT THE HOME OF THE HONEY-BEES.

This operation, in passing down through the limbs, usually will catch the wire-cloth lid, and close it with a slam. In case it is not closed, the apiarist steps forward and does it himself. Half or two-thirds of the bees are generally confined. In all probability the queen is there also. As the bees can not get out, those still flying in the air will very readily cluster on the wire cloth, surrounding the majority of their companions inside. To make this more expeditious, the tripod is adjusted, and the cage is suspended in the air, as shown in Fig. 3, right where the bees are flying thickest. In two or three minutes the remainder of the bees will be clustered on the outside. At this stage of the proceeding the apiarist comes forward, folds the two short legs against the pole, grasps it at its center of gravity (see Fig. 1), and walks off to the hive, which he has previously prepared. The wire fork is made of steel, and is light and springy. The walking of the apiarist has no tendency then to jar the bees off from the basket.

One of the special features of the Manum arrangement is, that the basket can be adjusted to almost any position, all the way from 2 to 10 feet from the ground. All that is necessary is to spread the tripod legs, catch them into the ground, and leave them standing. In the mean time, if the hive is

not prepared, the apiarist has ample time to get it ready. After this he can return to the swarm just now clustered. Most of the devices require to be held until the cluster has settled. It is a tedious job to hold a pole at arms' length, with face upturned. If the swarm clusters very high, some other arrangement, perhaps, would be better than the Manum; but for low shrubbery it is just the thing. The other special feature of the device is, that after you have gotten about half or two-thirds of the bees into the basket, they can not escape and seek their original point of attachment.

HAULING BEES WITH COLTS—A WARNING.

During the past week I have had some experience, of a kind of which Josh Billings said, "The tuishun is ruther li." We have been moving bees with a colt, and very likely you will forecast the result before I get through. Old horsemen tell us that colts should be hitched in the stable, or to the side of a barn or high board fence, or at least something they can not get their feet through or climb over, or tangle themselves up in. My colt Billy, referred to before in this department, had been making trips to the basswood orchard nearly every day. A large portion of this apiary has been devoted to filling orders for bees and queens by the pound, nucleus, and colony. At the orchard there was neither a shed, side of a barn, nor high board fence. The only available thing was a small elm-tree, about four inches in diameter. The ground was pretty level at this spot; and although it was not the best place in the world to hitch a colt, we thought we would "risk it" until we could fit up a hitching-post, or, better, a shed after the rush of the season. Billy stamped the ground considerably around that tree, and, colt-like, champed his bits.

One day we went down after about \$75.00 worth of bees, which were to go by express in the morning. As the aforesaid elm-tree was inconveniently situated for the market-wagon, we hitched to a fence—one that was strong. We had got our bees into the shipping-cages, and were loading them on the wagon. Billy became impatient, and wanted to go home before we got fairly loaded; and before we knew it he had somehow got his foot through the fence and into a gate. With \$75.00 worth of bees in the wagon, at May prices, and the horse tangled as he was, we rather expected a fracas. A few soothing words quieted the horse so that we could untangle him, and we were soon on our way, rejoicing that we had got out of our trouble so luckily.

About a month elapsed, and Billy in the mean time was learning to stand like an old horse. One afternoon, as usual, Mr. Spafford took Billy and the light wagon, your humble servant remaining at his desk. This time Mr. S. hitched to the elm-tree, and then went about his work. He had nearly finished his last hive when he heard a little noise in the direction of the horse. Rushing out, he noticed that the animal was behaving in a very unusual manner. Well, to make a long story short, Billy had caught the right thill in the tree. He then stepped to one side, and broke one end of the shaft

diagonally off, perhaps a foot from the end. The splintered part evidently struck just back of his fore-leg, and goaded him a little. As you know, a horse, when he is pricked by any thing, never moves away from the irritating object, but, on the contrary, will push the sharp point into himself. Billy pushed the thill into himself back of his fore-leg, reeled sidewise a little, and, with the point sticking in his vitals, again broke the thill off lower down. He then fell over one end of the thill, striking the ground, and the other end plunging deeply into his heart. Before Mr. Spafford could reach him and be of very much assistance, a valuable horse was killed—one that could travel fourteen miles an hour, and one for which I had, just prior to its death, had frequent offers. Whether an unlucky bee had stung the horse, and so been the direct cause of the disaster, we shall never know. I do know that I have lost a valuable horse, and a great pet, of which my wife was exceedingly fond.

Perhaps some of the experienced horse-breeders who read this will say, "Why did you not unhitch?" For the simple reason that we had tried it once or twice, and Billy had wound himself around the tree until he did not have any strap at all. Well, this is mishap No. 2.

As our three heavy draft horses were busy, we next took Meg. As she had run away several times, Mr. Spafford, after an experience with her once, feared to take her again. No other horse being available, Neighbor H. kindly offered to loan us his Bobby pony. This likewise was a colt. The hitching-place was made more substantial, and the horse was unhitched from the thills. Every thing went well until they were well started toward home with the bees. Like a good many other colts, he did some unexpected things. Why, what do you suppose it was? He simply fell down and broke both thills. There were \$25.00 worth of bees in the buggy. Very fortunately a farmer near at hand came to the rescue immediately. Mr. Spafford held the colt down while his companion unhitched. In the mean time an angry bee had the meanness to come and sting this poor colt on the end of its nose. He lunged a little, but by good management the colt was safely disengaged from the thills, without any sliver sticking him in his side, and another serious mishap. It was then raining, and the roads were getting slippery. The thills were wrapped around with straps, the horse rehitched, and Mr. Spafford started on his venturesome journey again. When he arrived at the factory I saw that something had gone wrong again; and although Mr. S. is an experienced horseman, and a man who has broken colts, and who has handled some very vicious animals, there was a care-worn expression on his face. As I stepped up to the horse, he begged to be excused from going after bees any more, with colts. I assured him that he shouldn't.

It is said, that it never rains but it pours—misfortunes never come singly. I do know that they sometimes come singly, but I am sure, also, that they often come in

pairs. I mention this misfortune that it may be a warning to others who are under the necessity of moving bees. It was all on account of our busy season, the rush of orders, and scarcity of help, that we took these little risks. We thought when the busy season was over that we would erect a substantial shed and a suitable hitching-place. But misfortunes would not wait. The moral is, where property is involved, do not run risks, where a few dollars in a shed or in a hitching-post will save a good many dollars in an accident.

GETTING BEES SECTIONS TO WORK IN SECTIONS.

ALSO USING ONE OR MORE PARTLY FINISHED SECTIONS AS A STARTER.

I LIKE Doolittle's article, and the comments thereon, on page 474. For the benefit of the younger members, let me repeat what I have already said. I have never had any trouble to get bees to work in sections by simply placing in the center of the super a section upon which the bees had previously worked. It does not matter whether the honey has been emptied out or not, only so that previously it has been partly filled with honey. The severest test I ever gave to this plan was last year and the year before. In each super put on, I placed in the middle a section that had been filled or partly filled with honey, and this honey had all been emptied out. Every colony which had any honey to spare from the brood-chamber commenced promptly in this section, filled it with honey, and commenced putting honey in the adjoining sections. These colonies were very few in number. The others, which had no more honey than was needed in the brood-chamber, as well as many which had not enough for the brood-chamber, commenced work in the "bait" section, generally filling and sealing it. I had many supers with the "bait" section filled and sealed, and not another section in the super worked on. So I feel pretty safe in saying that, with such a bait section in the super, my bees will work as readily as I want them to, in the supers. The bait sections are likely to be second class, but there need be only one for each colony, not one for each super.

SHALL UNFINISHED SECTIONS BE AGAIN USED?

Since writing the above I have read friend Green's article, on page 449. I think the strongest discussion ever had on the matter of using unfinished sections was at the National Convention, at Chicago; and, if I remember correctly, it was a pretty one-sided affair. I believe I gave no opinion, unless it was to say that sections *partly filled* at the time of putting on, were sometimes watery after being filled. But I've asked myself some questions about it since, one of which was this: If bees will commence and finish a section of foundation quicker than one filled with comb, how does it come that so much more extracted honey can be produced than comb, especially by those who allow the honey to be sealed over before extracting? The Dadants, it is well known, do no extracting till the close of the harvest, leaving the combs to be sealed over; and on page 429 of that excellent book, the Revised Langstroth, they say: "If we give to bees empty combs, to store their honey, we shall find, by comparing the products of colonies who have to

build their combs, with those of colonies who always have empty combs to fill, that these last produce at least twice as much as the others." Now, if they produce twice as much in the course of the season, can they not produce it more rapidly? However that may be, there seems to be a pretty plain statement that, in the course of the season, twice as many pounds of honey will be stored in ready-built combs as in foundation. Now, if that be true of full-sized combs—although the Dadants do not use full-sized combs for extracting—why is it not true of combs of any size, even down to $4\frac{1}{4} \times 4\frac{1}{4}$? And if these sections can be sold for only two cents less than the best, they are still very profitable, if even a fourth more honey can be produced in them. I confess that I have been quite puzzled to reconcile these apparently contradictory statements and opinions. Without being at all sure of my ground, I may be allowed to give a possible explanation. Remember that many, like friend J. A. Green, have held the view that a section used by the bees last year will not be filled as soon as one containing only foundation, and that it is not profitable to use such. One year I used a number of sections partly filled, left over from the previous year. I can not now tell whether they were filled more or less promptly than the others, but they were filled and stored for some time with the others. Before very long I found these sections, which had been left over from the previous year, becoming watery, the honey oozing through the capping, while the sections built on foundation were all right. Now, in this case is it not probable that the honey left over in these sections was unripe to begin with; and, after being kept over the winter, had soured at least a trifle? And is it unreasonable to suppose that the bees would be slower in filling such sections than in filling those furnished with foundation only? I remember, that at that same convention at Chicago great stress was laid upon the importance of having all vessels, used to contain extracted honey, very clean—the least remains of granulated honey being enough to spoil a lot of fresh honey. Now, is it not possible that those who have found unfinished sections so objectionable have used those containing some old honey, at least as much as the extractor would leave in them? The sections I use for bait are treated in this way:

Those containing much honey are extracted the previous fall, and all are cleaned out thoroughly by the bees, a pile of supers being left where the bees can rob them; the entrance, however, being *large enough for only a single bee*. I could not be induced, I think, to dispense with such bait, and I wish friend Green and others would try it and report.

Let me suggest how to settle pretty conclusively whether unfinished sections or foundation will be finished first. Take such bait sections as I have described, the last vestige of honey cleaned out of them by the bees—mind you, this must be done at a time when bees will rob, or they are not likely to clean the sections thoroughly—and put one in the middle of each super. Now, don't wait till the whole super is finished, but watch from time to time and see what is the *first* section finished. Another good way is this:

Fill a super alternately with sections of comb and foundation, then keep close watch and find the time when *all* the sections of one kind are finished, but not the others, and see which kind it is. Better

not consider the outside row on each side, as local causes may affect them.

C. C. MILLER.

Marengo, Ill.

Friend M., I have observed almost every thing you mention. I know the bees start on this one section, and sometimes fill it before they commence on the foundation; but for all that, when I gave the bees a whole set of sections, built out the previous year, it did not get along as well as others that had only a section or two to start them, the rest being filled with foundation. Some of the honey might have been as nice as that built on foundation, but it certainly was not as nice on an average, and a great deal of it was watery, and some of the honey was candied, while that built on my foundation was not candied at all. This is a matter of considerable importance, and I hope we may have more testimonies like yours, from actual experience.

THAT STOVEPIPE SMOKER AND BRUSH-BROOM.

W. L. COGGSALL EXPLAINS.

AS you desire me to explain about the brush-broom and stovepipe smoker that appear in my photograph, page 448, I will add that the smoker is made of sheet-iron, 8 inches deep, 5 inches in diameter, with a slide cover hinged on a rivet through the handle. The cover is designed to smother down the fire when burning too fast, or when not in use. There is a hole cut in the side, and strips are riveted on each side of the hole, and a slide shoves down over the hole after the fire is started. I usually leave a little draft so it will keep burning. A handle is riveted opposite the draft-hole, and is made out of half-inch and half-round iron. A half-inch hook is made on the end of a 1½-inch projecting rod at the top of the smoker, to hook over the edge of the hive. Two braces are fastened to the bottom of the smoker, to hold it away from the hive and keep it from wobbling around or burning the hive.

For fuel, I use chips or cobs; hang it on the windward side of the hive after removing the cover, and I will guarantee, if you have a good smoke going, that the bees won't bother you. You can beat the smoke down into the hive with the brush a little. It is designed for those who extract honey. I use it a great deal for taking off section cases. The brush is made from select and fine broom-corn, 9 inches wide at the brush end, so it will clean a Langstroth comb at one or two sweeps, after the bees are properly shaken off the comb. An eye-screw is put in the end, to which is attached a string, and which should be long enough to go over the head and shoulder, and hang right by your hand, and then you always know right where it is, and you do not have to look after it at all.

W. L. COGGSALL.

West Groton, N. Y., June 5, 1889.

Very good, friend C.; but we want to know what those brooms cost. What do you sell them for at retail? how much postage do they take, and what will you take to furnish 100 for? You need not be afraid of advertising in the reading-columns. I always enjoy the fun of advertising something real good, when furnished by a good man.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JULY 1, 1889.

Teach me to do thy will; for thou art my God; thy Spirit is good; lead me unto the land of uprightness.—Ps 143: 10.

A LITTLE ONE GONE.

THE following card at hand will explain itself:

We have lost our darling little baby girl. She was 17 months old. She died last night. We bury her to-day.
Yours in grief, C. P. DADANT.
Hamilton, Ill., June 17, 1889.

We extend our sympathy to the Dadant family.

A NEW FRENCH BEE-BOOK.

"THE Management of the Apiary" is the title of a new work on apiculture, by Mr. Ed. Bertrand, of Nyon, Switzerland. The book has 178 pages, printed in the very best style, on calendered paper, and is sold where published at half a franc, or 10 cts. The work is a reprint of some articles which appeared in the author's *Revue Internationale* in 1882 and '83, originally written for beginners. The work is divided essentially into 12 parts, each part devoted to a particular month, and all profusely illustrated and copiously indexed. In the back part of the book we find a minute description of every individual part of the Dadant, Layens, and Burki-Jeker hives, which seem to be the three principal types in use in France and Switzerland. These descriptions are accompanied with such accurate illustrations as make the hive itself useless if we simply desire to understand its construction. The work will be found invaluable to those who can read and understand the French language.

THE ARKADELPHIA BEE-LAWSUIT.

OUR readers will remember that the bees of Mr. Z. A. Clark, of Arkadelphia, Ark., some time ago were declared a nuisance by the city council, and that Mr. Clark was warned to remove his bees, or pay a fine of not less than \$5.00 nor more than \$25.00, or go to jail. Mr. Clark, feeling that very great injustice was being done, rather than go to the expense of moving his bees, took the penalty. He finally, however, removed his bees outside of the city limits. The aid of the Bee-keepers' Union was at once solicited, and the case was tried in the circuit court, where it was decided that "the city ordinance was illegal and void;" that "keeping bees is not a nuisance." The case was carried to the supreme court, and brother Newman just announces that the Union has, after an immense amount of worry and expense, again won the suit, and that a *grand precedent* has been established. In no single instance has the Union been defeated; and it begins to seem now that, in view of its past victories, to enlist its aid means success every time. It would be a terribly bad thing to have bees declared a nuisance by a supreme court, and perhaps there are but few bee-keepers who realize what the decision in the case of Mr. Z. A. Clark means.

Mr. Newman, the manager of the Bee-keepers' Union, informs us that \$1000 will be needed to prosecute the cases now on hand. Remember, you can not expect assistance from the Union unless you are a member. The fees are \$1.00 per annum. Perhaps we should say here, that we are not in favor of trades-unions in general; but the Bee-keepers' Union, under its present able management we are sure has been productive of good. After we have a few more precedents established like the Arkadelphia case, outside parties will be slow to declare bees a nuisance.

A NEW SOURCE OF HONEY IN TEXAS; HONEY COMING BY THE TON, EQUAL TO ANY THING PRODUCED IN THE WORLD.

MR. ROOT:—I send you a sample of guajilla honey to-day. I raised eight or ten tons of it this season. It weighs full 12 pounds to the gallon. Most of the honey we raise in this county is as good as this sample. I have had many intelligent men, who have been used to white-clover honey all their lives, tell me this was the prettiest and best honey they ever saw.

Your criticisms on Southern honey are generally unfavorable; but I am satisfied that, if you had enough of our catclaw honey to use one month, you would pronounce it equal to your best white clover.

D. M. EDWARDS.

Uvalde, Texas, June 24, 1889.

Friend E., we congratulate you people of Texas on having produced not only as handsome if not the handsomest honey ever gathered from any source, but some equal in flavor and every thing else that could be asked in the way of honey—not only white clover but even the celebrated California sage. By all means, tell us more about this guajilla. Is it a plant or tree, and why haven't we had some of the honey before? It seems as if this might start a new era in bee-keeping, especially if the plant or tree can be propagated. Tell us what you will take for the honey by the ton. We anxiously await further particulars.

THE A B C OF CHEESE-MAKING.

THE above is the title of a very pretty little pamphlet by J. H. Monrad, of Winnetka, Ill. The price of the work is 25 cents. It contains 36 pages of matter devoted directly to the cheese-making business, and almost every page has more or less pictures on it. It tells all about the implements used in cheese-making; tells how to make a home-made cheese-press at a very little expense, and discusses the best kinds, if you see fit to buy one. I do love to see these industrial books, and I believe I like them all the better where they are written by young farmers who have a love for the line of work they have chosen. The whole book is written in a very happy vein. Since milk and honey are so often spoken of in the pages of Holy Writ, I have often felt a good deal of interest in the cheese and dairy business. When I eat strawberries I always want plenty of milk. Of course, cream is better, especially where you have a Jersey cow; and if there is any thing that gives a relish to a nice piece of cheese, it is the very same strawberries we have been talking so much about in this issue. Now, even if you are not a cheese-maker, I think you would enjoy reading friend Monrad's A B C book. You can order it of him direct, or we can furnish it to you for 25 cts. postpaid. In the back part of this book is given a list of the dairy literature of the world. There are nine periodicals devoted to the dairy business, and about a dozen books. Two of the journals are German, one French, and six English; of twelve books devoted to dairying, six are English, two Danish, three German, and one French. I think, friends, it is good to look over the

fence occasionally, and see what our neighbors are doing.

BUSH LIMA BEANS AT THIS DATE, JUNE 29.

I CONFESS I would much rather not say any thing about the bush lima beans, or, rather, say as little as possible, in a general way; but I guess I had better own up. After investing so much money in the seeds it occurred to me that they must not only have the best ground and best planting, but they must have the very best part of the season. As the lima beans are very apt to be nipped by the frost at both ends of the season, it requires considerable judgment to decide when to plant. During the last of May, however, we were having such fine nice weather that I decided that then was just the right time to plant them. The extra early limas were put in—King of the Garden limas—and then a few of the Henderson bush limas, also a few of the Kumerle. A cold spell came on, however, and every thing stopped growing. I waited a week or more until the cold spell seemed to be over; then, as it was getting late, I put in the rest of all of them, except a few of Henderson's, because quite a few orders were coming in. You know how it has been for bee men and everybody else. We had a constant succession of cold rains. The pole limas, however, came up pretty fairly, and are doing nicely. About half of Henderson's germinated, and not one-fourth of the Kumerle. Worse still, more than half of Henderson's and the Kumerles that did start were feeble and sickly; and it is a question now whether they will ever produce any beans at all. By the middle of June, when we were pretty sure that no more of Henderson's would be called for, the rest of them were planted. As we then had pretty fair weather, and not too much cold rain, every bean came up, strong and healthy. Now, this proves, I think, that the bush lima beans, all of them, are considerably more tender and more tropical in their nature than the ordinary pole lima beans. They must have warmer weather. I think that Henderson suggests they had better not be planted until after the pole limas. I do not believe that I have a whole dozen good strong thrifty Kumerle plants growing, out of the 150 seeds that cost me over 50 cts. a seed. There may be a dozen or more sickly plants that may or may not amount to something. The Minnesota bush lima bean from Northrup, Braslin, Goodwin & Co., planted right along with the rest, came up strong and thrifty, and every bean grew. Just now they are far ahead of all the limas in rank growth; but they have no appearance in foliage of lima beans at all; and the largest part of them have already sent out strong shoots to climb poles. Present appearances seem to indicate they are simply a rank-growing, large yellow bean. There have been several complaints that the Henderson bush lima bean did not germinate freely. The above will explain the reason for it, probably. I would send you more, if I had them; but as I haven't, we will give a good big package for next season (if you will send in your name) to all those who failed with the other package this year.

OUR BERRY CROP.

WE have sold over 100 bushels of strawberries, and we shall probably have twice as many raspberries.

WE have at this date, 8821 subscribers,

SPECIAL NOTICES.

MANUM'S SWARMING DEVICE.

The swarming-device mentioned and described in the department of Recent Developments, elsewhere in this issue, we sell for 75 cts. each, or \$6.00 for ten. It weighs 9 lbs., and will hold a swarm suspended from the basket, anywhere from 2 to 10 feet from the ground.

SOUTHERN PRIZE TURNIP.

Well, friends, we now have a seven-top turnip that not only gives blossoms for the bees, and greens for early spring, but it also gives a nice turnip that will stand in the ground over winter—at least it did stand over such a winter as our last one, here in Ohio. We can furnish you the seed at the same price as our old seven-top turnip; namely, 5 cts. per packet; 10 cts. per ounce, or 50 cts. per pound.

IGNOTUM TOMATO-PLANTS.

As we have several thousand of these on hand yet, we offer them, until the stock is exhausted, at the price of common varieties; namely, 10 cts. for 10; 75 cts. per 100, or \$6.00 per 1000. As the plants are quite large and strong, if wanted by mail they will be just double the above prices. If set out at once, they will give a fair crop of tomatoes in most localities, before frost. Livingston's Beauty, Mikado, and Dwarf Champion, will be furnished at just half the above prices.

POULTRY-NETTING FOR PEAVINES.

On page 510 of our last issue I stated that the poultry-netting that I used for our Alaska peas was 1½-inch mesh. This was a mistake. I should have said 3 inches and No. 20 wire. But I made another mistake besides. Even the 3-inch mesh can not be sold for 50 cents for a bale of 150 feet. The regular price would be 67 cents, and 65 is about as low as we can figure it. When I give you any more figures on poultry-netting, I will try to submit them first to our purchasing clerk, Mr. Calvert. The 3-inch mesh is exactly as good as anything smaller. In fact, I prefer it because the mesh is large enough to reach through and pick the pea pods that are on the other side. I am not sure, in fact, but that a 4-inch mesh, if we could get it of fine enough wire, would have satisfied the peavines just as well as the 3-inch.

STRAWBERRIES.

In our issue for June 1 I told you we should probably have good strong plants ready for shipment as soon as that number was in the hands of the readers. Well, we had very nice-looking plants with great bushy tops; but the roots were so poorly developed that we have not even now filled our orders. The sooner you get strawberry-plants started, the better prospect for a crop next season. We shall plant out strawberries ourselves in July, August, September, October, November, and may be to some extent in December. But every month counts largely. The July-set plants will be away ahead of those set later, but our supply will probably be limited, although with the abundant rains they are doing an immense business in the way of making new plants. There is one of the new things in gardening, however, that we can furnish you in any quantity, and they are ready to ship now. It is the Egyptian, or winter onion. These this season have fully sustained their reputation. We have now had them three winters in the same spot of ground. We never knew an onion to be winter-killed, and they are such strong growers that they crowd out weeds and every thing else. Just get them started on some good ground, and you will always have early onions, almost with no attention whatever. Like the strawberries, the sooner you get them in the ground, the better. Wherever early peas or early beets, or any thing of the kind, comes off, just drop the seeds in a drill as you would peas, and in a very few days you will be delighted to note their wonderful growth. They not only bear sets on the tops, but they bear them out on the sides, and seem to do every thing that an onion can do to multiply and replenish the earth with onions. Price 10 cts. a pint; \$1.25 a peck, or \$4.00 a bushel. If wanted by mail, add 8 cts. per quart for postage.

AN ATTRACTION FOR FAIR-EXHIBITS.

Some of our old customers will remember that we used to advertise and furnish sections 4¼ in. square, with fancy-shaped center, such as stars, hearts, diamonds, etc. We have not made these of late, but we have had frequent calls for letters to be filled with comb honey by the bees, to form mottoes. We have never been well equipped for making these till now. We have a full set of pattern letters to work from, and they are of such a size that three will fill an 8-section wide frame, the openings forming the letters being about 7½ in. high and 5 in. wide. M and W, of course, are wider, and I narrower. The letters are of the following pattern:

FAIR, 1889.

The price will be 10 cts. per letter or figure. With thin foundation inserted, 15 cts. per letter or figure. In ordering, if you will write the letters in the order you want them, we can make 3 letters in one piece, just right to slip into a wide frame. Or if you don't happen to have a wide frame, simply tack a bar on top, to suspend it from, and hang it in the hive without a frame around it. The 4 figures, 1889, will go in a frame. To make the letters, we simply tack two ½-inch boards together, mark the letter, and jig it out on a scroll-saw. To put in the foundation, separate the boards, lay a sheet between, and tack them together again. We make the letters large, because the bees will work in them more readily, and they are much more conspicuous when filled.

PREMIUM OFFER.

To those intending to make an exhibit, and who will agree to distribute judiciously the circulars we will send, we will furnish free one letter or figure for each dollar's worth of goods ordered, if the order amounts to \$4.00 or more. If foundation is inserted in each letter, we will furnish 2 letters for every \$3.00 worth of goods ordered.

JAPANESE * BUCKWHEAT.

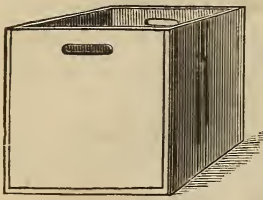
500 BUSHELS SOLD ALREADY.



Now is just the time to sow it. We once harvested a crop of gray buckwheat seed that was sown Aug. 10. We do not advise such late sowing, as the frost is apt to catch it before it is ripe. From the 1st to the 20th of July is the best time to sow. We have plenty of seed yet, \$2.00 per bushel; \$1.25 per ½ bushel; 75 cts. per peck; 10 cts. per lb.

A. I. ROOT, Medina, Ohio.

BUSHEL POTATO-BOXES. GALVANIZED BOUND.

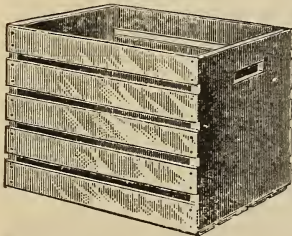


(TERRY'S).

These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price, nailed up, 25 c each; 10, \$2.25; 100, \$20.00. In the flat, including nails and galvanized iron, \$1.75 for 10; 100, \$16.50; 1000, \$150.

SLATTED POTATO-BOX



As the pieces of which the above are made are mostly from remnants of basswood used in making sections, we can furnish them nailed up for 20 cents each; 10 for \$1.85; 100, \$16.00. Material in the flat, including nails, in packages of 12 boxes each, at

\$1.50 per package, and each package includes two of the twelve boxes nailed up, complete. Ten packages, 5 % off.

We have over 100 packages of the latter in stock ready to ship by return train. Please be careful in ordering to say whether you want the galvanized bound or the slatted boxes.

A. I. ROOT, Medina, Ohio.

FOX-HOUND PUPPIES FOR SALE.—First-class stock. Address C. A. WOOD, 13tfdb Tarrytown, Westchester Co., N. Y.

KIND WORDS FROM OUR CUSTOMERS.

I received the extractor June 12, in good condition, and am much pleased with it. J. M. SMITH. Perkiomenville, Pa., June 18, 1889.

The plants are received. I never saw such a nice way to pack them for shipping. We set them out, and it being wet they not even wilted. They were much larger than I expected to see, and good count; came quick, as I got them Thursday night, and sent Monday. R. GOLLING. Chase, Lake Co., Mich., June 1, 1889.

The tomato-plants you sent me came all right. It was a surprise for me to see that plants can be sent by mail so safe. They are as nice as if just taken out of the seed-bed. Just think of it! They were five inches larger than I thought they would be. Thanks for the nice packing. H. WILLING. Chesaning, Mich.

SWEET POTATO PLANTS AND THE DOVETAILED HIVE.

Those sweet-potato plants came through in the best shape of any I ever received from any grower—all alive, growing finely.

My Dovetailed hives came yesterday. I got them home last night. I could not go to bed till I had one all complete. I am well pleased with them. I think they are stronger than any other hive I ever saw, and I like them nearly as well as my own make, and perhaps I shall like them better after using them one summer. F. L. SNYDER.

Orion, Wis., June 13, 1889.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of ten years' careful breeding. Reduced prices: Warranted queens, each, 70c; 3 for \$2.00. Strong 3 L. frame nucleus, with warranted queen, \$2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me, I refer to A. I. Root, who has purchased of me, during past nine years, 415 queens.

Address **J. P. MOORE,**
13d Morgan, Pendleton Co., Ky.

JAS. F. WOOD, NORTH PRESCOTT, MASS.,

Will now ship by return mail, his warranted queens to any address, for 75 cts. each, or \$8.00 per dozen. Single queen to Canada, 85 cts. Being isolated from all black bees I am able to warrant every queen purely mated, and safe arrival guaranteed. Every queen is of good shape, and all have filled several combs with eggs before being shipped. I will replace every queen that hatches a black bee with a select tested queen, worth \$2.00.

If you want the best queens promptly, send me your orders. I am bound to suit you. Address as above. 13tfdb

FOR CASH.—Italian queens in July and August. One, untested, 60 cts.; per doz., \$6. One tested queen, \$1.25; per doz., \$12. Guarantee safe arrival. Address **D. E. ALDERMAN,** 13d Clinton, Sampson Co., North Carolina.

MY 21ST ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. **H. H. BROWN, Light Street, Cal. Co., Pa.**

300 Tested and Untested Italian Queens From Imp. Mothers, by Return Mail.

Tested, 75c. Untested at \$6 per doz.; 50c each. No foul brood ever known here. Queens light. Money-order office, New Iberia, La. 13-24db **J. W. K. SHAW & CO.**

TESTED Italian queens, \$1 each; untested, 75 cts., or three for \$2, by return mail. 13tfdb **I. R. GOOD, Nappanee, Elkhart Co., Ind.**

WANTED! At Plattsmouth, Nebraska, to Sell 3-Frame Nucleus Colonies Italian Bees with Queens, at \$2.50 Each.

9tfdb **J. M. YOUNG, Box 874, Plattsmouth, Neb.**

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION. See advertisement in another column.

LITHOGRAPH LABELS

In 12 Colors, at \$2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring $2\frac{1}{8} \times 2\frac{3}{4}$. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; \$1.20 for 500; \$2.00 for 1000. **A. I. Root, Medina, O.**

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

A full line of supplies always on hand. Also Italian queens and bees at a very low price. Send for large illustrated price list. 1-23d

A. F. Stauffer, Sterling, Ill.

[In responding to this advertisement mention GLEANINGS.

WE ARE NOW READY TO SUPPLY ITALIAN QUEENS to any person who wants as good as the best in the U. S. Reared from the egg, in full colonies. Tested, \$2.00; untested, \$1.00; 6 for \$5.00. Mismatched, 50 cts. Remit by Registered Letter or Money Order on New Market, Ala. 10-13db

B. B. TONEY & CO.,

Padgett, Jackson Co., Alabama.

BUTTON'S PLIERS and WIRE SHEARS.



DECLINE IN PRICE.

We are pleased to quote the following reduced prices on Button's pliers, which you will find much lower than former prices:

Post.	Length.	Each.	10.	100
4	4½-inch Button's pliers	50	4 50	41 00
6	6-inch " "	60	5 40	50 00
10	8-inch " "	75	6 75	62 00
17	10-inch " "	1 20	10 50	100 00
The 4½-in. will cut No 14 wire and smaller.				
" 6	" " " 12	" "	" "	" "
" 8	" " " 10	" "	" "	" "
" 10	" " " 7	" "	" "	" "

A. I. ROOT, Medina, Ohio.

THE ABC OF CARP CULTURE

A COMPLETE TREATISE

Upon the Food Carp and its Culture.

INCLUDING PLANS AND SPECIFICATIONS, AND FULLEST INSTRUCTIONS FOR THE CONSTRUCTION OF PONDS, AND EVERY THING PERTAINING TO THE BUSINESS OF RAISING CARP FOR FOOD.

Illustrated by Many Fine Engravings.

By A. I. Root and George Finley.

PRICE: 35 Cts.; by Mail, 40 Cts.

A. I. ROOT, Medina, O.

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 33c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

Apiarian Supplies.

V-GROOVE SECTIONS OF BASSWOOD,
SHIPPING-CASES OF BASSWOOD,
HIVES OF WHITE PINE COMPLETE.

Manufactured by

9-11 WARREN MFG. CO., Riverton, Virginia.
13 d
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CARNIOLAN QUEENS A SPECIALTY.

Largest and Purest Carniolan Apiary in America. Send for descriptive circular and price list. Address ANDREWS & LOCKHART,

3tfd Pattens Mills, Washington Co., N. Y.

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LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; \$7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; \$1.10 for 10; \$10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for \$1.50; 100 for \$14.00; ½-pint tin cans, no brush, 25 cts.; \$2.20 for 10; \$21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; \$7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with this Saw. It will do all you say it will."

Catalogue and Price List Free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. **A. I. ROOT.**
23tfd

VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd JNO. VANDERVORT, Laceyville, Pa.

SOUTHERN HEADQUARTERS FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "let-live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address

1tfd **J. P. H. BROWN, Augusta, Ga.**

GLEANINGS IN BEE CULTURE.

❧ BEE-KEEPERS' ❧ SUPPLIES. ❧

QUALITY AND WORKMANSHIP UNSURPASSED.

We are prepared to furnish **Bee-Keepers** with **Supplies Promptly**, and with goods of uniform excellence, as heretofore. Our Hives all take the **Simplicity Frame**. The "**Falcon**" **Chaff** **Hive** and the "**Chautauqua**," with **Dead-Air Spaces**, are both giving universal satisfaction.

We manufacture a **Full Line** of **Bee-Keepers' Supplies**, including "**Falcon**" **Brand** **Foundation**, and gladly

FURNISH ESTIMATES, AND SOLICIT CORRESPONDENCE.

SEND + FOR + LARGE + ILLUSTRATED + PRICE + LIST + FOR + 1889 + FREE.

THE W. T. FALCONER MANUFACTURING CO.,

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Successors to W. T. FALCONER.

Jamestown, N. Y.

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FOREIGN ORDERS SOLICITED.

NEW JERSEY.

EASTERN + DEPOT

(Bees.) —FOR— (Queens.)

EVERYTHING USED BY BEE-KEEPERS.

EXCLUSIVE MANUFACTURER OF THE

STANLEY AUTOMATIC HONEY-EXTRACTOR.

Dadant's Foundation, Wholesale and Retail.

WHITE POPLAR OR BASSWOOD SECTIONS.

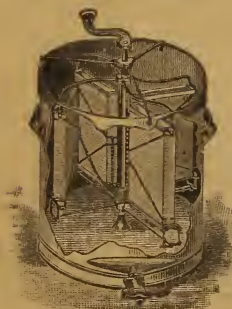
One Piece, Dovetail, or to nail. — Any Quantity, any Size.

COMPLETE MACHINERY—FINEST WORK.

Send for Handsome Illustrated Catalogue, Free.

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BEE SUPPLIES.

Wholesale and Retail.

Illustrated catalogue FREE to all. Address 3-11td

E. KETCHMER, COBURG, MONTGOMERY CO., IOWA.

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**THE BRICHEST FOUR-BANDED
GOLDEN ITALIAN BEES AND QUEENS,
AND THE REDDEST DRONES.**

Price, select tested, \$3.00; tested, \$2.00. Untested, in May, \$1.25; June and after, \$1.00.

9-124b **L. L. HEARN, Frenchville, W. Va.**



**1889. 1889.
Italian Queens.**

Select tested, in May, \$2.50; June, \$2.00; July 1 to Nov. 1, \$1.50. Queens warranted purely mated, \$1.00; 6 for \$5.00. Will commence shipping May 1, and ship as booked. Make money orders payable at Nicholasville. Send for circular.

J. T. WILSON.

Little Hickman, Jess. Co., Ky.

10-11td

HEADQUARTERS IN THE SOUTH.

FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at \$3.75. In lots of 5, at \$3.50 each. Untested queens at \$9.00 per dozen in June, \$8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Eleventh annual catalogue.

11td **P. L. VIALON, Bayou Goula, La.**

UNTIL FURTHER NOTICE.

Select tested Italian queens, \$1.00. Standard breeding queens, \$2.00. Imported, fine and prolific, \$6.00.

R. H. CAMPBELL,

10tdb **Madison, Morgan Co., Ca.**

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Italian and Albino Queens and Bees

OR THEIR CROSSES,

Ready to Ship May 15th.

The crosses of these two races make the finest bees I ever saw. They are large, very light colored, and good workers. Will sell in any shape or quantity to suit purchaser. Send for price list, and five cents for sample of bees.

9-11-13d **A. L. KILDOW, Sheffield, Ill.**

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**J. C. SAYLES,
HARTFORD, WIS.,**

Manufactures Apiarian Supplies of Every Description. Catalogue Free to All.

3td **Send Your Address.**

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